UNIVERSIDAD
DE ANTIOQUIA
1 8 0 3

Investigación y Educación en Enfermería

–Nursing Research and Education–

Vol. 40 No 3, September-December 2022 • ISSNp: 0120-5307 • ISSNe: 2216-0280

UNIVERSIDAD DE ANTIOQUIA
1803

Investigación y Educación en
Enfermería
–Nursing Research and Education–

Vol. 40 No. 3, September - December 2022 • ISSNp: 0120-5307 • ISSNe: 2216-0280

Indexed by

MEDLINE/PUBMED
PubMed Central
Europe PubMedCentral
Scopus
SciELO Colombia
SciELO Citation Index in Web of Science
International Committee of Medical Journal Editors
PUBLINDEX
LATINDEX
REDALYC
AMELICA
CUIDEN
LILACS-BIREME
DIALNET
RedEDIT
EBSCO Fuente académica
DOAJ
ELSEVIER EMcare
ProQuest
Ulrich Global Series Directory
Google Scholar
DORA signatory

This issue had financial support from the Committee for the Development of Investigation –CODI- of Universidad de Antioquia

President: John Jairo Arboleda Céspedes

Nursing School Dean: Juan Guillermo Rojas

Head of the Research Center at Nursing School: Wilson Cañón Montañez

Editor in Chief: María de los Ángeles Rodríguez Gázquez

External Editorial Board
Carmen de la Cuesta y Benjumea; Universidad de Alicante, Spain
Cristina García-Vivar, Universidad Pública de Navarra, Spain
Edelmira Castillo Espitia; Universidad del Valle, Colombia
Edith Elina Rivas Riveros; Universidad de la Frontera, Chile
Gladys Eugenia Canaval Erazo; Universidad del Valle, Colombia
Isabel Amélia Costa Mendes; Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, Brazil
José Ramón Martínez Riera; Universidad de Alicante, Spain
José Rafael González López; Universidad de Sevilla, Spain
José Verdú Soriano; Universidad de Alicante, Spain
Manuel Alves Rodrigues; Escola Superior de Enfermagem de Coimbra, Portugal
Martha Lucía Vásquez Truissi; Universidad del Valle, Colombia
Martha Lilia Bernal Becerril; Universidad Nacional Autónoma de México, Mexico
Miguel Richart Martínez; Universidad de Alicante, Spain
Neusa Collet; Universidade Federal da Paraíba, Brazil
Olga Lucia Cortés Ferreira; Fundación Cardioinfantil, Colombia
Rafael Fernández Castillo; Universidad de Granada, Spain
René Mauricio Barría Pailaquilen; Universidad Austral, Chile
Sonia Semenic; University of McGill, Canada
Vijayalakshmi Poreddi; National Institute of Mental Health and Neuro Sciences, India

Internal Editorial Board
Diego Alejandro Salazar Blandón; Universidad de Antioquia, Colombia
Jasmín Cacante Caballero; Universidad de Antioquia, Colombia
Luz Estela Varela Londoño; Universidad de Antioquia, Colombia
Marcela Carrillo Pineda; Universidad de Antioquia, Colombia
María Eugenia Hincapié Zapata; Universidad de Antioquia, Colombia

Editorial Assistants
Melissa Mesa Ramírez; Universidad de Antioquia, Colombia
Ángela María Gómez Londoño; Universidad de Antioquia, Colombia

Publication date: October 15th 2022

Short title: Invest. Educ. Enferm.

ISSNp: 0120-5307, **ISSNe:** 2216-0280

Published by: Facultad de Enfermería de la Universidad de Antioquia, Colombia

Contents

Editorial

Original Articles

Contents

Editorial

UNIVERSIDAD
DE ANTIOQUIA
1803

Nursing Research, Dissemination of Knowledge and its Potential Contribution to the Practice

R. Mauricio Barría P.[1]
https://orcid.org/0000-0002-3764-5254

Descriptors: nursing research; journal article; nursing, practical; evidence-based practice

Descriptores: investigación en enfermería; artículo de revista; enfermería práctica; práctica clínica basada en la evidencia.

Descritores: pesquisa em enfermagem; artigo de revista; enfermagem prática; prática clínica baseada em evidências

Every day, nurses face dilemmas in clinical practice by having to make decisions about caring for patients, which can occur without up-to-date knowledge or sufficient resources. In previous reflections, I have exposed and commented on the need to move from research, particularly from research findings, to the practice in the different

---

[1] RN, MSc, Ph.D. Director of the Institute of Nursing, Faculty of Medicine, Universidad Austral de Chile. E-mail: rbarria@uach.cl

How to cite this article: Nursing Research, Dissemination of Knowledge and its Potential Contribution to the Practice. Invest. Educ. Enferm. 2022;40(3):e01.

DOI: https://doi.org/10.17533/udea.iee.v40n3e01

UNIVERSIDAD DE ANTIOQUIA 1803
Investigación y Educación en Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

contexts of nursing work and of health sciences in general, exposing the gap that still remains between the generation of knowledge and its application in daily practice.(1,2) This gap, although in differential magnitude, is still present in the different scenarios in which nursing takes place, that is, in healthcare practice (hospital, outpatient, and community), as well as in teaching.

Some ten years ago, Mitchell *et al*.,(3) presented a thematic analysis of the models to report on the development, transfer, and use of knowledge, identifying 47 models. These were grouped into thematic areas that accounted for the interaction among research, its adoption as knowledge, use, communication, and transfer. In addition, they highlighted that, despite progress in developing conceptual models, weak growth still prevails in aspects, like theoretical development related with Evidence-Based Practice, use of knowledge, and translational science.

If we focus on the care context, we should recognize that – as proposed – research contributes to the scientific rigor of the daily practice, allowing improvements by applying knowledge in favor of patient care; with such, clinical nurses could also be considered scientists.(4) Nonetheless, until now, it has been verified how the development of research fails to establish itself in clinical contexts and the nursing practice by clinicians themselves. Undoubtedly, research in teaching settings is greater as it is carried out by professors in academic contexts to understand problems and phenomena of practice in all its fields. In contrast, the real adoption of research as an effective function of nurses within their professional role still seems incipient. This, for example, is evident in reports that show that the participation of clinical nurses in scientific research and their perception on research capacity are suboptimal despite relatively high research training needs, so that they are not sufficiently prepared to conduct scientific research and rarely integrate scientific methodology in their clinical practice.(5) Moreover, a low level and quality of research conducted by hospital nurses has been detected, with poor participation in research groups.(6)

Within this scenario, is that the use of available research to update and improve knowledge is of particular importance and, consequently, improve the clinical nursing practice, management, and teaching. However, we have known for a long time of the limitations to access and use evidence and even, in the first instance, to communicate research findings.

Dissemination of knowledge derived from research is crucial, being able to share the results of different studies through oral communications in events and congresses and others, with greater reach and permanence in journal articles. That is why, given that we assume that the dissemination and use of knowledge in practice are necessary for professional growth, it needs to be disclosed after its publication in scientific journals, such as the setting provided by the journal *Investigación y Educación en Enfermería* that has permitted sharing progress and experiences in different areas of the discipline during nearly 40 years.(7)

This way, scientific publication is a critical point in how we renew knowledge in the discipline/profession and, thus, the scientific article becomes a fundamental aspect of the research process, allowing the closure of this path traced from an idea or problem and the response given to it thanks to the investigative process. From a shared perspective in the fields of research, the statement that "what is investigated and not written, or written and not published, is equivalent to not being investigated" becomes relevant.(8)

Although it seems evident that an investigation is proposed knowing that it should be shared, a common problem limiting the dissemination of knowledge generated through research is the difficulty acknowledged by nurses in drafting a scientific article and for this reason, often, the effort to develop a research project and execute it is limited to it being shared in oral or poster presentations at scientific conferences, such as congresses or seminars. Notwithstanding, although this is a relevant step in communicating research findings, the impact is lower than publishing in a scientific journal. It is clear that the scope of publishing a work in academic journals allows sharing innovation experiences and contributing to learning within a field, which ultimately leads to improved patient care. However, it must be equally clear in pointing out that transforming a work from an abstract to an article to be submitted for review by a journal's reviewers involves a greater challenge and requires developing specific skills.(9)

It is understandable that when limitations, difficulties, and barriers to conducting research, writing an article, and publishing it hinder the generation of new knowledge and its dissemination, clinical professionals must assume the responsibility and duty to update themselves based on the research available that constitutes the evidence that would allow improving care. In recent decades, initiatives have proliferated seeking to provide skills to improve the quality of nursing practice centered on the Evidence-Based Practice model. In this sense, an experience in the hospital context implemented a study plan based on this model, encompassing a number of guiding principles: shared governance, promotion, professional development, and EBP and, thereby, foster a spirit of inquiry to ensure resources to identify and use research findings in patient care.

Lastly, we must recognize the importance of strengthening the relationship and interaction between clinicians and academics as a way of establishing an alliance that promotes, firstly, collaborative research and continuous training for the search, analysis, interpretation, and application of available research. Thereby, proactivity to promote settings for permanent discussion will be the way research findings can effectively and efficiently impact the exercise and practice of nursing in all its areas. Otherwise, the gap will persist among practical nursing, graduate programs, and academia, making research infertile and that will continue to accumulate, failing to convey its main objective, which is competent, up-to-date, and ethical professional care for people and communities.

References

1. Barría RM. The gap remains: The challenge of translating research into policies for the health care of people and communities. Invest. Educ. Enferm. 2017; 35(2):129-130.
2. Barría, RM. Implementing Evidence-Based Practice: A challenge for the nursing practice. Invest. Educ. Enferm. 2014; 32(2):191-3.
3. Mitchell SA, Fisher CA, Hastings CE, Silverman LB, Wallen GR. A thematic analysis of theoretical models for translational science in nursing: mapping the field. Nurs. Outlook. 2010; 58(6):287-300.
4. Martínez Coronado DC, Camargo Sánchez A, Vargas Vargas RA, Camacho DM. Investigación y ciencia en enfermería clínica: logros y desafíos. Actual. Enferm. 2013; 16(3):28-36.
5. Wu X, Wu X, Gao Y, et al. Research-training needs of clinical nurses: A nationwide study among tertiary hospitals in China. Int. J. Nurs. Sci. 2019;6(3):300-8.
6. Silva-Vera ME, Bancalero-Herrera P, Ramos-Rodríguez JM, Morano-Alonso MC, Gallardo Cabrales S. Investigación en cuidados: una aproximación a la realidad. Metas Enferm. 2022; 25(6):7-14.
7. Rodríguez-Gázquez MA, Chaparro-Hernández SJ, Rojas-Minota WM. Scientific production of the journal Investigación y Educación en Enfermería during its 30 editing years. Invest. Educ. Enferm. 2013; 31(3):341-53.
8. Artiles Visbal L. El artículo científico. Rev. Cubana Med. Gen. Integr. 1995; 11(4):387-94.
9. Tume LN, Vollam S, Trapani J. How to convert your conference abstract into a paper for Nursing in Critical Care? Nurs. Crit. Care. 2021; Suppl 1:4-5.
10. Burns HK, Noonan L, Jenkins DP, Bernardo LM. Using Research Findings to Design an Evidence-Based Practice Curriculum. J. Contin. Educ. Nurs. 2017; 48(4):184-9.

Original article

Lived Experience of Iranian Family Caregivers of Tubercular Patients: A Qualitative Study

Zinat Mohebbi[1,7]
https://orcid.org/ 0000-0003-2995-0264
Raziye Dehbozorgi[2,8]
https://orcid.org/ 0000-0002-2234-0319
Giti Setoodeh[3,7]
https://orcid.org/ 0000-0003-1323-874X
Marzieh Momennasab[4,7]
https://orcid.org/ 0000-0003-3090-2331
Naval Heydari[5,7]
https://orcid.org/ 0000-0003-3274-4226
Maryam Shaygan[6,7]
https://orcid.org/ 0000-0002-1456-9340

Lived Experience of Iranian Family Caregivers of Person with Tuberculosis: A Qualitative Study

Abstract

Objective. To investigate the lived experience of family caregivers of persons with tuberculosis. **Methods.** In this study, the method of hermeneutic phenomenology. Data were collected through online in-depth semi-structured interviews with nine family caregivers of TB patients. The obtained data were thematically analyzed to explain the concept of home care for TB patients through van Manen's 6-step methodology. **Results.** After the thematic analysis, three main themes of caregivers' mental distresses, quality care stasis, and facilitated care were obtained from 944 primary codes and 11 categories. **Conclusion.** Family caregivers of these patients suffer from mental distress. This issue affects the quality and ease of caregiving for these patients. Therefore, policymakers of this area should pay attention to the family caregivers of these patients and attempt to provide support; they should try to improve their quality of life.

1 Assistant Professor, Department of Nursing. Email: mohebbi04@yahoo.com
2 Ph.D. Candidate. Email: rdehbozorgi110@gmail.com
3 Assistant Professor, Department of Mental Health and Psychiatric Nursing. Email: setoodeh@sums.ac.ir
4 Associate Professor, Department of Nursing. Email: momennasab@sums.ac.ir
5 Ph.D. Candidate, Student Research Committee, Community Based Psychiatric Care Research Center, Department of Nursing. Email: navalheydari@gmail.com. Corresponding author.
6 Associate Professor, Community Based Psychiatric Care Research Center, Department of Nursing. Email: m2620.shaygan@gmail.com
7 School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran.
8 Nursing and Midwifery School, Isfahan University of Medical Sciences, Isfahan, Iran.

Conflicts of interest: None.

Receipt: December 13, 2021.

Approved: October 3, 2022.

How to cite this article: Mohebbi Z, Dehbozorgi R, Setoode G, Momennasb M, Heydari N, Shaygan M. Lived Experience of Iranian Family Caregivers of Tubercular Patients: A Qualitative Study. Invest. Educ. Enferm. 2022; 40(3):e02.

DOI: https://doi.org/10.17533/udea.iee.

Investigación y Educación en
Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

Descriptors: caregivers; hermeneutics; qualitative research; tuberculosis.

Experiencia vivida de los cuidadores familiares de personas con tuberculosis: Un estudio cualitativo

Resumen

Objetivo. Investigar la experiencia vivida por los cuidadores familiares de personas con tuberculosos**.** **Métodos.** En este estudio se utilizó el método de la fenomenología hermenéutica. Los datos se recogieron mediante entrevistas semiestructuradas en línea con nueve cuidadores familiares de pacientes con tuberculosis. Los datos obtenidos se analizaron temáticamente para explicar el concepto de atención domiciliaria a los pacientes con TB mediante la metodología de 6 pasos de van Manen. **Resultados.** Tras el análisis temático, se obtuvieron tres temas principales: angustia mental de los cuidadores, estancamiento de la atención de calidad y facilitación de la atención, a partir de 944 códigos primarios y 11 categorías. **Conclusión.** Los cuidadores familiares de estos pacientes sufren de distrés sicológico. Este problema afecta la calidad y la facilidad con que se brinda el cuidado. Por lo tanto, los responsables de la política en salud deben prestar atención a los cuidadores familiares de estos pacientes para proporcionarles más apoyo, lo que redundará en una mejoría de su calidad de vida.

Descriptores: cuidadores; hermenéutica; investigación cualitativa; tuberculosis.

Experiência vivida de cuidadores familiares de pessoas com tuberculose: um estudo qualitativo

Resumo

Objetivo. Investigar a experiência vivida por cuidadores familiares de pessoas com tuberculose. **Métodos.** Neste estudo foi utilizado o método da fenomenologia hermenêutica. Os dados foram coletados por meio de entrevistas semiestruturadas online com nove cuidadores familiares de pacientes com tuberculose. Os dados obtidos foram analisados tematicamente para explicar o conceito de atenção domiciliar aos pacientes com TB utilizando a metodologia de 6 etapas de van Manen. **Resultado** S. Após a análise temática, três temas principais – sofrimento mental dos cuidadores, estagnação do cuidado de qualidade e facilitação do cuidado – foram derivados de 944 códigos primários e 11 categorias. **Conclusão.** Os cuidadores familiares desses pacientes sofrem de sofrimento psíquico. Essa questão afeta a qualidade e a facilidade com que os cuidados são prestados a esses pacientes. Portanto, os responsáveis pela política de saúde devem estar atentos aos cuidadores familiares desses pacientes para dar-lhes mais suporte, o que resultará em uma melhora em sua qualidade de vida.

Descritores: cuidadores; hermenêutica; pesquisa qualitativa; tuberculose.

Zinat Mohebbi • Raziye Dehbozorgi • Giti Setoodeh
Marzieh Momennasab • Naval Heydari • Maryam Shaygan

Introduction

Despite 90 years of vaccination and 60 years of drug treatment, tuberculosis (TB) is still one of the leading causes of death by infectious agents.(1) In 2015, TB was one of the top ten causes of death worldwide.(1) Despite the efforts made to reduce the difficulties of the treatment process, TB is still a health problem, especially in developing countries.(2) According to a study, the average incidence of pulmonary TB was 7.5 per 100,000 people.(3) A study have shown a decline in the incidence of the disease in Iran between 2008 and 2017.(2) However, other study indicate an increase in the incidence of Extra pulmonary TB and highlight the need for special attention to this disease.(3) Since 1994, the World Health Organization has recommended the Directly observed treatment, short-course (DOTS) protocol for treating this disease.(4). Most infected people are treated with this outpatient method and have received home care from their families.(5) Therefore, family caregivers have an important role in adherence to treatment of patients. According to a study with a phenomenological approach in South Africa, social support contributed to adherence to treatment of these patients, and this support was better when the diagnosis and treatment of the disease were revealed to the patient's family members and friends.(6) A study in Iran also considered support from family effective in following the treatments for these patients.(7) The results of a relevant study in London also showed that social factors affected the delay in the diagnosis and treatment of TB.(8) On the other hand, a person with TB expects psychological support and guidance from his caregiver. In patient's view, home is a proper place for rest and recovery.(5)

Family caregivers of patients with TB have to do tasks such as monitoring the patient's adherence to the medication regimen; evaluating the side effects of medications; preparing a particular medication plan for the patient; checking his health condition, nutrition, and activity level; and ensuring the appropriateness of the schedule for referring the patients to health care providers.(9) These tasks and experiences are presented as challenges for caregivers that put pressure on them. On the other hand, living with a TB patient and providing care for him/her has created problems in families that are difficult to deal with.(6) Caregivers of patients with TB are ignored by the communities because they are close to these patients. This will affect the way the family takes care of these people.(10) These caregivers sometimes feel embarrassed, guilty, and angry.(11) It is noteworthy that whatever these family caregivers experience is private and are mentally affected by their conditions. Therefore, understanding them [caregivers] influences the quality of care they provide for these patients. The caregiver must be aware of the concept of what is important to patients and their families based on their own experiences, and they have a good understanding of them. Understanding the meaning of care is also essential for care providers.(12) On the other hand, most of the studies have examined the patients' lived experience.(6,13) For example, a study examined the patients in South Africa with a phenomenological approach,(6), or another case study investigated the lived experiences of a sick Spanish woman.(13) Therefore, considering the previous facts, valuable experiences of caregivers of these patients, lack of sufficient studies on these experiences in the world, especially in Iran, and dependability of family caregivers' experiences on the context, qualitative research with a phenomenological approach helps to clarify the phenomenon of caring for the infected patients and gain a deep understanding of various aspects of this phenomenon. Since qualitative studies provide people with opportunities to express their views, values, and opinions,(14) in the qualitative approach, reality emerges in the individuals' minds. It exists in the context and can be examined through the inductive process.(15)

Researchers of present study are experienced in the field of TB patient care and interested in this subject. In fact, by conducting this qualitative study, they have reached the results based on the lived experiences of TB caregivers who are the main care providers for TB patients at home. Therefore, the present study was conducted to investigate the lived experience of family caregivers of TB patients using a phenomenological approach. It is hoped that nurses will use the knowledge gained in the cultural context in this regard to hold support programs for these patients.

Methods

Participants. This qualitative study was conducted using the hermeneutic phenomenological method that is descriptive-interpretive. The hermeneutic phenomenology approach and the van Manen method provide the possibility of achieving the lived experience of individuals from different perspectives. They also give a deeper understanding of the phenomenon under the study by interpreting the perception and lived experiences of numerous individuals and determining the shared features of the phenomenon.(16) Participants were selected through purposive sampling method from family caregivers of tuberculosis patients referred to Shiraz Pulmonary Diseases Center, which is the largest city and medical hub of southern Iran. The inclusion criteria in the study were: 1. Non-professionals who care for a sick family member with a diagnosis of TB. 2. Rich experiences in this regard and ability to communicate thoroughly. 3. Willingness to present their experiences to the researcher.

Data Gathering. According to inclusion criteria 12 participants invited for in-depth interview. Two of them dropped out due to lack of time attending the interview and one for unfavorable health status. So, 9 participants attended for in-depth interview. After interviewing nine participants, the researchers concluded that deep and rich information had been obtained and that the data had been saturated. The researcher (RD, Ph.D candidate in Nursing) interviewed each of the nine participants individually, using a semi-structured in-depth interview by online video calls from June 2, 2020 to November 1, 2020, for 30 to 70 minutes. They asked open-ended questions (In the fact that you have been caring for your tuberculosis patient for some time, please explain your valuable experiences during this time; Would you explain one day of caring for tuberculosis patient from morning to evening?; When you hear about "caring for tuberculosis patient", how do you feel?; When you hear about "caring for tuberculosis patient", how you think about it?; When you hear about "caring for tuberculosis patient", how you could describe it?; and: How "caring for tuberculosis patient" look like?) and probing questions (Would you explain more?; Would you narrate it more vividly?; and: Would you bring me an example?). Also, the rest of the questions were asked flexibly and according to the participants' answers. The first two interviews considered as pilot testing of the questions and prompts, which completed for the next interviews. The first two interviews were discarded then. Interviews were conducted via online video calling and with the participant's permission recorded by a recorder. Then were transcribed word by word immediately after each interview; data collection continued until rich, in-depth, and relevant data emerged and the researchers concluded that adequate data had been collected and no new data would be obtained and data saturation had occurred. The final transcript returned to the participants for feedback and double checking. Then, the data were used for analysis. There was no drop out and no need for interview repetition.

Ethical considerations. This research was approved by the Ethics Committee of X University of Medical Sciences (ethics confirmation number: X). All participants completed informed written consent to participate in the study. Also, the researcher guaranteed anonymity and confidentiality because the interviews were to be presented with a general perspective and did not focus on individual viewpoints.

Data Analysis. Using the van Manen interpretive method, we analyzed the lived experiences of family caregivers of people with TB using open coding through MAXQDA2018 software. The researcher considered six methodological themes as a practical approach in conducting this interpretive phenomenology: 1. turning to the nature of the lived experience of TB caregivers while dealing with them was interesting for the researchers. Then, 2. Lived experience of the patient caregivers was investigated. At this stage, the researcher selected caregivers with rich experience, interviewed them, recorded, and transcribed their conversations word by word. 3. In the third phase, the researcher reflected on the essential themes which characterize the phenomenon. 4. Describing the phenomenon through the art of writing and rewriting was the fourth step. In this phase, the researcher wrote the necessary topics of the interview in the form of a story with a rich description of the caregivers' experience of caring for TB patients. 5. Maintaining a strong and oriented relationship with the phenomenon was the next step, in which the question "What is the lived experience of TB caregivers?" was considered. 6. In the last phase, balancing the research context by considering the parts and whole was considered, and finally, attention and orientation towards the nature of the lived experience of caregivers of TB patients. In this regard, the researcher maintained the relationship between different parts and the whole study in her mind.(17, 18)

Rigor. The researcher used Lincoln and Guba criteria(19) to evaluate the robustness of the data. To increase the credibility, prolonged engagement for five months and eight days in the field was used. Peer debriefing was performed through repeated reviews of the research team and relevant professors. The researcher received feedback from the participants in the form of reviewing the results, codes, and their compliance with the views of the four participants. To enhance the transferability, we made an attempt to state the participants' sentences in the continuation of each theme clearly and completely. To increase dependability, we used the participants' triangulation by selecting individuals with different demographic characteristics. Attempts were made to make the results confirmable. Before giving their explanations, the participants did not read the opinions of other participants about the care of TB patients; they were unaware of their views, so the data were objective. The researcher addressed the concept of essence in phenomenology to achieve a perception of caring for patients with TB, appropriate to the research topic, by having an open view of the caregivers' lived experience. Their opinions were heard and recognized. (18) The researchers made reflection during the research process by being aware of their own thoughts and made regular efforts to consider their thoughts and actions to reduce bias in collecting, analyzing, and interpreting the data.

Results

The details of the participants' characteristics are presented in Table 1. After thematic analysis, three main themes were obtained from 944 primary codes and 11 classes. They included caregivers' mental distresses, quality care stasis, and facilitated care (Table 2). Lived experience of family caregivers of patients with TB means mental distress and different quality of care (stasis and facilitated).

Table 1. Demographic Information of the Participants

Participant	Gender	Relationship with the patient	Age (in years)	Marital status	Occupation
1	Female	Daughter	23	Single	Housekeeper
2	Male	Spouse	27	Married	Self-employment
3	Male	Son	54	Married	Self-employment
4	Female	Daughter	35	Married	Self-employment
5	Female	Mother	68	Widowed	Housekeeper
6	Male	Brother	22	Single	Self-employment
7	Female	Sister	42	Married	Housekeeper
8	Female	Mother	33	Married	Housekeeper
9	Female	Spouse	56	Married	Housekeeper

Theme I: Caregivers' Mental Distresses

The theme of caregivers' mental distress indicates that there have been factors creating mental confusion among caregivers while caring for their TB patients. The categories extracted for this theme were the perception of TB as a confusing disease and the mental and psychological distress of caregivers during illness.

Perception of TB as a confusing disease. This category reflects the ambiguous nature of TB from the caregivers' point of view, which has subcategories such as caregivers' confusion about tuberculosis. In this regard, one of the participants said: *The exact onset of my mother's illness was not known. In fact, we did not know anything about TB at the time and did not know what to do (Participant 3).* The hesitation about health care providers' competence is another subcategory of perception of TB as a confusing disease category. One participant says: *You know, when I was in the hospital, everyone was asking me how I was taking these drugs. Their knowledge was more than mine, but they did not know their knowledge about this disease was not enough. (Participant 8).* The fear of tuberculosis was another subcategory of perception of TB as a confusing disease category. This fear included fear of disease and the fear of family members getting tuberculosis. About this, participants said: *secret pains that only you know, not anybody else. Horrible pains in all your body. (participant 9).* The fear of incurability before diagnosis was another concern of caregivers. These fears became apparent by the caregivers' numerous visits to physicians to discover and diagnose their fear of incurable diseases: *We were afraid of probable hazards; my sisters and my mother were scared. Not knowing what is good for this disease, they feared this disease would lead to her death. (Participant 6)*

Mental and Psychological Distress of Caregivers during Illness. The second main category of the theme of caregivers' mental distresses was related to the mental and psychological distress of caregivers during the illness, which includes the subcategory of the caregivers' mental rumination, expression of frustration by the caregiver, Caregiver's anger, Caregiver's fear and worry, Caregiver's discomfort, and a feeling embarrassed due to having tuberculosis. Existence of dual feelings, hesitation, remorse for not telling others about the diagnosis, repeated uncertainties, and inability to express the feelings expressed under the subcategory of caregivers' mental rumination:

Table 2. Themes, Categories, Subcategories

Themes	Categories	Subcategories
I. Caregivers' mental distresses	1. Perception of TB as a confusing disease	• Caregivers' confusion about tuberculosis • Hesitation about health care providers' competence • The fear of tuberculosis • Fear of incurability before diagnosis
	2. Mental and psychological distress of caregivers during illness	• Caregivers' mental rumination • Expressing frustration by the caregiver • Caregiver's anger • Caregivers' fear and worry • Caregivers' discomfort • Feeling embarrassed due to having tuberculosis
II. Quality care stasis	1. Carrying the burden of care alone	• Being single caregiver • Lack of emotional support from relatives
	2. Unease of unwanted cases	• Coincidence of TB with the prevalence of COVID –19 disease • Involvement of family feelings due to the coincidence of TB with other diseases • Co-occurrence of TB with other disease
	3. The paradox of observing and not observing standard precautions	• Failure to follow the standard precautions of tuberculosis • 2. Observing precautions related to tuberculosis
	4. Non-acceptance in society	• The society's negative views about tuberculosis • Concealing diagnosis
III. Facilitated care	1. Facilitating role of the COVID crisis for caregivers	Improvement of treatment conditions Facilitation of mandatory observance of TB precautions Limited commutation
	2. Occurrence of adaptive behaviors of caregivers with tuberculosis	Caregivers' preliminary knowledge about TB Disclosure of diagnosis Resilience of caregivers Attempts to acquire basic knowledge about tuberculosis
	3. Faith in God and hope for the future	Having faith in God during the period of illness Satisfaction with uncontamination of caregiver Caregiver's increased hope of not being alone in diagnosing tuberculosis Hope for a good prognosis
	4. Being supporter of patients with tuberculosis	Perceived supportive behaviors by the treatment system Spiritual support from friends Strong family support in patient care Caregivers' efforts to improve their family and themselves' mental condition
	5. Being at ease of care after a challenging onset.	Early difficulties of the disease Improvement of the conditions by the start of treatments

Maybe, it would have been much better if I had told others about the diagnosis, but I did not say, and it cannot be said now. (Participant 4). One caregiver talked about expressing frustration: *I'm no longer living my life; I'm no longer living. It's all nonsense. (participant 5).* Fear and worry were the other emotions expressed by caregivers: *They said he would get well. Well, I had hope, but I used to say what if my father did not get well, or what if he got worse. Or I had heard that this medicine would harm the liver; then, I thought if he did not take the medicine to cure one organ, would it cause another organ in his body to get infected? (Participant 1).* Another participant states: *They said he would get well. Well, I had hope, but I used to say what if my father did not get well, or what if he got worse. Or I had heard that this medicine would harm the liver; then, I thought if he did not take the medicine to cure one organ, would it cause another organ in his body to get infected? (Participant 1).* One caregiver expressed embarrassment about tuberculosis:

I don't know if this disease is embarrassing or something like that or ugly (Participant 4).

Theme II: Quality Care Stasis

Caregivers mentioned many things in their experiences that could decrease the quality of care and make it difficult. The sub-categories of this theme were the Carrying the burden of care alone, unease of unwanted cases, the paradox of observing and not observing standard precautions, and non-acceptance in society.

Carrying the burden of care alone Six of participants complained about being a single caregiver and lack of emotional support from relatives in caring for their patients, which is an obstacle to quality care. One of them about being single caregiver said: *I was doing the hospital work alone because my sister, mother, and father were burnt in an incident, and my brothers were young, too. I was under high financial pressure, and it was all on me. (Participant 6).* Another participant said about Lack of emotional support from relatives*: In this disease, I was involved more than the other children. I did all the works by myself; I took him to the hospital myself, but the others helped less during this time; however, I was the main person who did all the care (Participant 4).*

Unease of unwanted cases. The experience of unforeseen events during TB has sometimes made it difficult for caregivers to tolerate the disease. These cases have also put the family under pressure to provide better care. Coincidence of TB with the prevalence of COVID-19 disease, Involvement of family feelings due to the coincidence of TB with other diseases, and co-occurrence of TB with other disease are among the lower classes in this main category: *I'm terrified since the emergence of Coronavirus; that is, if one of the children coughs, I feel I'm dying. I feel dead since I fear it may be COVID-19 (Participant 9); Since the beginning of the pandemic, my father was in hospital. We were afraid they might get infected with the Corona virus since they were there for their TB. We weren't scared for our brothers because they were young. Our main fear was for our parents. We observed all the protocols; however, when a patient with COVID-19 walked past us, we were scared. It was dangerous (Participant 1).* One participant talked about the co-occurrence of tuberculosis with other diseases: *Later, when the family was like this, their burn in the accident made the situation more difficult. I was stuck in my sister's problem that the fire happened and made the situation worse (Participant 6).*

The paradox of observing and not observing standard precautions. The observation of the standard precautions related to TB was presented in a contradictory way by the caregivers. A participant who also had TB talked about the experience of observing precautions related to tuberculosis in this way: *No one approached him. He was one meter or two away from us. We found out that he had the disease. We separated his room and did not have much contact with* *him. We separated him, washed, cleaned, and disinfected. When he was sick, the child wouldn't come to our house. My sister always wore a mask* (Participant 6). In contrast, some caregivers' experiences showed failure to follow the standard precautions of tuberculosis for some reasons: *I did not know before that he had this problem. I was very close to him. I think they told me to keep the distance, but the truth is that I have been involved in it for 2-3 years now. I did not observe at that time. It's very funny if I observe now. (laughter) Why should I lie? I did not separate his dishes either. I said that he would be more disturbed if I attempted to separate his dishes* (Participant 8).

Non-acceptance in society. The last subcategory was the main category of quality care stasis in a non-acceptance of society. From the caregivers' point of view, the society's negative views about TB and concealing diagnosis were two subcategories mentioned by the caregivers. An example of the participants' statements about the negative view of society by caregivers is as follows: *The one whose mother was infected is not told about the diagnosis, but they say the whole family should take the test every couple of years. It was like this that instructions that were informing and efficient are not available. I hope there comes a day when doctors say TB and HIV are similar to cold, or say: you are clean if you take this test. I wish that and pray to God for that. I hope we see a day when this disease is treated as cold in our country (Participant 9).* Here is what a participant said about the fear of judgment following the disclosure of a diagnosis:*For example, in our neighborhood, all the people are like this. When they hear a word, they say the opposite and spread it. And here, everyone knows about each other. Therefore, we decided not to tell anyone because we didn't want them to backbite us or say bad words behind us (Participant 1).*

Facilitated care

The third theme obtained from the analysis of the lived experience of participants is facilitated care. Categories related to the theme including Facilitating role of the COVID crisis for caregivers, Occurrence of adaptive behaviors of caregivers with tuberculosis, faith in God and hope for the future, being supporter of patients with tuberculosis, and ease of care after a challenging onset.

***Facilitating role of the COVID crisis for caregivers*.** The three subcategories obtained were improvement of treatment conditions, facilitation of mandatory observance of TB precautions, and limited communication. Also, caregivers experienced numerous satisfactory experiences regarding the role of Corona virus crisis facilitation: *The prevalence of Corona pandemic was not that much annoying for us. He had to take his medication on time, so I had to take his medications to school. They were three or four. Some of them had to be taken with short intervals. Yes, Corona was in our favor in places because I could give his medicine regularly (laughs) (Participant 8).*

Occurrence of adaptive behaviors of caregivers with TB. Over time, caregivers experienced adaptive behaviors that helped them achieve quality care for their patients. Subcategories of this category included the caregivers' preliminary knowledge about TB, disclosure of diagnosis, resilience of caregivers, and attempts to acquire basic knowledge about tuberculosis. Caregivers' preliminary knowledge about TB had made caregivers more adaptive to the disease. One the caregivers stated: I *mean, I found out that TB was a dangerous infectious disease. I noticed that my mother went to the lady who died of the same disease almost a year ago. Because, At the same time, the same lady was visiting my mother, my mother got emotional and got the disease. (Participant 3).* Disclosure of diagnosis of tuberculosis to others was another factor in the occurrence of these adaptive behaviors. In this regard, a caregiver said: *Our landlord who is with of us could see what a bad cough he was having. I had told my mother and sister what the problem was because they kept asking. I had also told* *my sister-in-law that she had tuberculosis, but her aunt, who lives in Shiraz, was coughing. When she asked what had happened, I told her it was TB (Participant 6).* Resilience of caregivers was another important subcategory that most participants cited in their experiences: *The children had accepted him, too. We did not have a big problem, so we did not avoid him. They had gotten along with their father. When I went for the test, I came and said: "Mom, do not be afraid. I got TB and, there is nothing to worry about; but, what could I do? Children said: you are not afraid. I said black will take no other hue. Why should I be afraid? (Participant 9).* Attempts to acquire basic TB knowledge were reported as another factor in increasing caregivers' adaptation: *Sometimes, Mr. A, whom I would text him or go to him to get medicine, would say: No, he will be okay. Well, they have more knowledge about the disease than us (Participant 8).*

Being supporter of patients with TB. The other main category of facilitated care is related to the patient support experience of a patient with TB that includes subcategories of perceived supportive behaviors by the treatment system, spiritual support from friends, strong family support in patient care and caregivers' efforts to improve their family and themselves' mental condition. The caregiver's attempt to improve his or her mental state or family is similar to using the psychological advice of a patient-supporting subcategory, which is contagious. A caregiver said: *I took my parents to a psychologist to convince them that this was not dangerous for them. I have a psychologist friend, but I talked to him not as a psychologist, but as a friend for 10 minutes every night. Well, I could do many things. I was getting relieved, and I knew what I was supposed to do tomorrow (Participant 7).* One participant talked about cohesive patient support: *I took his blood test for liver and kidneys every two or three weeks because they said the disease has side effects on other organs. I wanted to make sure he did not have any other problems and could do his routines. I was asking because I was so obsessed. I was asking a different doctor. I was asking as many people as I could (Participant 4).*

***Being at ease of care after a challenging onset*.** The subcategories related to this main category are the early difficulties of the disease, and Improvement of the conditions by the start of treatments. Subcategories related to the early difficulties of the disease included the patient's constant objections to caregivers during care, the physical problems of the primary caregiver, mental health problems, financial problems, and disruption of life routines. During the disease in the family, some participants expressed the patient's numerous objections to the early difficulties of the disease: *One of them told me to take him to the hospital to drain his neck infection. He said, 'No, I can't stand it. We insisted a lot; we said let's go. He said: I have such bad experience in the hospital that I am not willing to go there again (Participant 9).* Some caregivers also reported financial problems in the family: *I had to spend most of the money I had saved. I borrowed it from here and there. It was a high pressure on me (Participant 6).* Improving the condition with the start of treatment was another subcategory, which included subcategories such as improvement of the physical condition of caregivers, caregivers' satisfaction, improvement of the patient's situation, and meeting the family's financial needs at the time of illness. One caregiver talked about reducing the time of night awakenings as conditions improved: *The nights before he took the pills, he would wake up three times and go to the bathroom. The first night was the same, but from the second night onwards, when he took the pills, it got much less (Participant 3).* The caregivers' sense of satisfaction with the continuation of the care was apparent in their conversations*: I mean, there is no problem at all, just a slight pain. My dad no longer sleeps in bed at all, and they are all out; everything is normal (Participant 1).* About meeting the family's financial needs, one caregiver said: *Thanks God, they are giving us free medicine now (Participant 2).*

Discussion

The main purpose of this study was to examine, describe, and interpret the lived experience of family caregivers of TB patients to gain an insight into the phenomenon that the caregivers mentioned in their words. The themes were the answer to the question: what is the lived experience of caring for TB patients? To answer this question, we can say that caring for TB patients at home includes the three themes of caregivers' mental distresses, quality care stasis, and facilitate caring. According to the results of the present study, factors such as confusion, fear of illness, frustration, anger, and shame lead to ambiguity and psychological distress of the caregivers. These factors ultimately cause mental disorders in family caregivers of TB patients. A study of 35 family caregivers of children with TB in Mozambique also revealed that the diagnosis was associated with adverse reactions such as pity, fear, worry, anger, and sadness.(20) Phenomenological studies on caring the relatives of TB patients in India have also reported mental and psychological fatigue such as hatred, anger, and impatience.(21) A study of content analysis on TB patients and their family caregivers in Indonesia showed that TB stigma associated with psychosocial problems, including feelings of shame and social exclusion, was influenced by fear of transmitting the disease and the others' blame.(22) A qualitative study of nurses caring for TB patients in South Africa conducted the themes of fear, anxiety, stress, and risk of getting infected.(23) Therefore, several studies have shown the confusion, mental and psychological pressures in caregivers of TB patients. It is also necessary to pay attention to them and provide psychological support through various means such as referral to psychologist or establishing mental counseling centers for TB patients and their caregivers.

Another theme was the quality of care stasis, which included a sense of loneliness in care, unease of unwanted cases, the paradox of observing and not observing standard precautions, and non-acceptance of society. In the study on caregivers of Indian patients, meeting the environmental health needs of patients has been obtained from one of the subcategories.(21)This attempt is in line with the category of observance and non-observance of standard precautions in the present study. In a content analysis study on patients with TB and their family caregivers in Indonesia, patient isolation was one of the subcategories.(22) One of the duties of the family is to observe the health protocols and keep the environment clean. Also, the caregiver must make sure the environment is clean and maintain standard precautions.(21) A study of children with TB in Mozambique showed a lack of adherence to treatment and care in one-fourth of patients.(24) According to Mindu's study, the patterns of delayed care search related to the official health care system and follow-up treatment; therefore, significant efforts should be made to inform people about the long and complex nature of TB diagnosis and treatment, so that the community adapts with the formal system despite its tendency for care alternatives.(20)

One study found that Indonesian families and patients considered TB a frightening, severe, and dangerous disease.(22) It also revealed that this affected the adherence to treatment and quality of patient care. The support from family members is vital for the patient's care and following treatments, so the main reason for discontinuation of treatments in some patients is the lack of support from family members. (21)Hence, family support is crucial in the continuation or otherwise of quality care in TB patients.

The last theme obtained in the present study was the facilitated care, one of the subcategories of which was the facilitating role of the Corona crisis for caregivers because the observance of standard precautions and social isolation for TB patients and their families leads to their social isolation. Thus, as soon as others know about their diagnosis, they avoid these patients because of their disease, and exclude them from their social life. (22) However, social distancing and standard precautions created by the Corona pandemic make it easier for families of TB patients to follow through, and there is no need to explain the reason for standard precautions to other people who are in touch with them. In this way, social exclusion due to the fear of transmitting TB and the others' blame was reduced because, in the current situation, all members of society should observe social distancing and standard precautions.

The occurrence of adaptive behaviors of caregivers with TB was another facilitator of care. A phenomenological study on Ethiopian patients with TB also showed a positive effect of the patients' adaptation to family and the others' reactions on the process of their care and recovery.(25) In a study by Rakhmawati,(22) Indonesian caregivers and TB patients also used different strategies to adapt to the TB stigma. These adaptive behaviors reflect the value of families in maintaining the relationships and the intimacy and loyalty of other family members to protect and help each other.(22) Providing psychological support to facilitate the caregivers' adaptation to this situation and maintain their productivity and active care is crucial.(23) Faith in God and hope for the future were other facilitators of care found in the caregivers' words. Disappointment is peculiarly predictable in patients with refractory TB that requires special attention.(25)

Another facilitation of care is supporting TB patients. Psychosocial support from family, friends, and the community is crucial for the treatment of these patients. It helps to overcome the fear of the disease and its complications, so home care facilitates it.(6,25) Infected patients are sometimes kept in nursing homes, which prevents them from receiving emotional, social, and physical support from their families; therefore, it harms the patients' recovery. A person with TB should not be deprived of social and psychological support from society. In this respect, awareness about the disease and its consequences at the community level is necessary. Family caregivers play a significant role in protecting the patient against treatment complications and in monitoring treatment and maintaining a healthy environment. However, caregivers themselves need financial, psychological, and social support, and the presence of a mental health counselor is necessary to provide emotional and psychological support to patients and their family caregivers.(21) The results of a study on TB patients and their caregivers in Indonesia indicated their need for support from health care providers to overcome the stigma of the disease.(22) In the present study, the subcategory of ease of care after a challenging onset refers to the financial, mental, and physical problems of caregivers. This subcategory attracts the health officials and policymakers' attention to providing solutions to support the patients' family caregivers. Studies also show that counseling, psychosocial support, and awareness about the disease are efficient ways to help TB patients and their families to cope with the disease, so efforts should be made in this regard.(21) Socio-cultural support, formation of support groups, provision of information, and strategies to improve the quality of life for these patients and their families are recommended.(6)

This study has many Implications such as providing insights into community members' perceptions of TB and how this affects health-seeking behavior and quality of life. The participants mentioned stigma and discrimination within the community primarily due to the perceived TB. The expressed experiences highlight the interplay of factors at individual, household, and community levels and how they affect TB-related health-seeking behavior, diagnosis, and treatment.

Conclusion. Finally, it can be said that the caregivers' mental distress, quality care stasis, and facilitated care have been among the experiences of family caregivers of TB patients. The authors hope that the results of the study will contribute to the planning of managers and policymakers of this disease to provide solutions for these families to overcome their daily challenges and grant quality of life for these caregivers, so that due to their quality of life improvement, TB patients' life quality improves.

One of the limitations of the present study was the impossibility of face-to-face interviews due to the conditions caused by the Corona pandemic, in which online video calls were used to address this issue. Also, in this study the collection of data was just through individual interviews and making use of other data collection methods could enrich the results of this study. Another limitation of this study was that the participants were only from one center and the selection of them from other centers in the country could improve the generalizability of the findings, so more qualitative and quantitative research on larger samples in other places and cultures is needed to investigate the lived experience of family caregivers of tuberculosis patients.

References

1. Bloom BR, Atun R, Cohen T, Dye C, Fraser H, Gomez GB, et al. Tuberculosis. In: Holmes KK, Bertozzi S, Bloom BR, Jha P, editors. Major Infectious Diseases. The World Bank: Washington (DC); 2017.
2. World Health Organization. Global Tuberculosis Report 2018. Geneva: World Health Organization; 2018.
3. Shirzad-Aski H, Hamidi N, Sohrabi A, Abbasi A, Golsha R, Movahedi J. Incidence, risk factors and clinical characteristics of extra-pulmonary tuberculosis patients: a ten-year study in the North of Iran. Trop. Med. Int. Health. 2020; 25(9):1131-9.
4. Sahile Z, Yared A, Kaba M. Patients' experiences and perceptions on associates of TB treatment adherence: a qualitative study on DOTS service in public health centers in Addis Ababa, Ethiopia. BMC Public Health. 2018; 18(1):462.
5. Du Toit DA, Van Staden SJ. Nursing sociology. 4 ed. South Africa: Van Schaik Publishers; 2014.
6. Akeju OO, Wright SC, Maja TM. Lived experience of patients on tuberculosis treatment in Tshwane, Gauteng province. Health Sa. Gesondheid. 2017; 22(1):259-67.
7. Behzadifar M, Mirzaei M, Behzadifar M, Keshavarzi A, Behzadifar M, Saran M. Patients' Experience of Tuberculosis Treatment Using Directly Observed Treatment, Short-Course (DOTS): A Qualitative Study. Iran. Red Crescent Med. J. 2015; 17(4):e20277.
8. Evenden P, Roche A, Karo B, Balasegaram S, Anderson CS. Presentation and healthcare delays among people with tuberculosis in London, and the impact on treatment outcome. BMJ Open Resp. Res. 2019; 6(1):e000468.
9. Lewis SM, McLean Heitkemper M, Bucher L, Harding M, Kwong J, Roberts D. Medical-surgical nursing: Assessment and management of clinical problems. 10 ed: Mosby Elsevier; 2016.
10. Shatil T KN, Yunus FM, Chowdhury AS, Reza S, Islam S, Islam A, Rahman M. What Constitutes Health Care Seeking Pathway of TB Patients: A Qualitative Study in Rural Bangladesh. J. Epidemiol. Glob. Health. 2019; 9(4):300-8.
11. Ushie BA, Jegede AS. The paradox of family support: concerns of tuberculosis-infected HIV patients about involving family and friends in their treatment. AIDS patient care and STDs. 2012;26(11):674-80.
12. Van Manen M. Researching lived experience: Human science for an action sensitive pedagogy: Routledge; 2016.
13. Zuñiga JA. A Woman's Lived Experience with Directly Observed Therapy for Tuberculosis—A Case Study. Health Care Women Inte. 2012; 33(1):19-28.
14. Polit D, Beck C. Essentials of nursing research. Ethics. 2012; 23(2):145-60.
15. Woo K. Polit & Beck Canadian Essentials of Nursing Research: Lippincott Williams & Wilkins; 2017.
16. Mohebbi Z, Sharif F, Peyrovi H, Rakhshan M, Alizade Naini M, Zarshenas L. Patients' experience of living with irritable bowel syndrome (IBS): A hermeneutic phenomenology. J. Qual. Res. Health Sci. 2020; 9(1):28-37.

17. Magrini J. Phenomenology for educators: Max van Manen and "human science" research [Internet]; Philosophy Scholarship. Paper 32; 2012. Available from: http://dc.cod.edu/philosophypub/32
18. Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins; 2011.
19. Lincoln YS, Guba EG. Criteria for Assessing Naturalistic Inquiries as Reports; 1988. Available from: https://files.eric.ed.gov/fulltext/ED297007.pdf
20. Mindu C, López-Varela E, Alonso-Menendez Y, Mausse Y, Augusto OJ, Gondo K, et al. Caretakers' perspectives of paediatric TB and implications for care-seeking behaviours in Southern Mozambique. Plos One. 2017; 12(9):e0182213.
21. Choudhary G. Caring of Tuberculosis Patients: A Study of Psychosocial Factors. Int. J. Innov. Knowl. Concept. 2019; 7(2):98-104.
22. Rakhmawati W, Nilmanat K, Hatthakit U. Living with Stigma: The Experience of Tuberculosis Patients and Family Caregivers in Indonesia. Indian J. Public Health Res. Dev. 2019; 10(10):2061-5.
23. Matakanye H, Ramathuba DU, Tugli AK. Caring for Tuberculosis Patients: Understanding the Plight of Nurses at a Regional Hospital in Limpopo Province, South Africa. Int. J. Env. Res. Public Health. 2019; 16(24):4977.
24. Saifodine A, Gudo PS, Sidat M, Black J. Patient and health system delay among patients with pulmonary tuberculosis in Beira city, Mozambique. BMC Public Health. 2013; 13(1):559.
25. Burusie A, Lamaro T, Dessalegn B. Lived Experience of Multi-Drug Resistant Tuberculosis Patient; A Hermeneutic Phenomenological Study. J. Prev. Med. 2020; 5(3):09.
26. Bloom BR, Atun R, Cohen T, Dye C, Fraser H, Gomez GB, et al. Tuberculosis. In: Holmes KK, Bertozzi S, Bloom BR, Jha P, editors. Major Infectious Diseases. Washington (DC): The International Bank for Reconstruction and Development / The World Bank© 2017 International Bank for Reconstruction and Development / The World Bank.; 2017.
27. Organization WH. Global tuberculosis report 2018 Geneva: World Health Organization; 2018 [cited 2020. Available from: http://apps. who. int/iris/bitstream ....
28. Shirzad-Aski H, Hamidi N, Sohrabi A, Abbasi A, Golsha R, Movahedi J. Incidence, risk factors and clinical characteristics of extra-pulmonary tuberculosis patients: a ten-year study in the North of Iran. Tropical medicine & international health : TM & IH. 2020;25(9):1131-9.
29. Sahile Z, Yared A, Kaba M. Patients' experiences and perceptions on associates of TB treatment adherence: a qualitative study on DOTS service in public health centers in Addis Ababa, Ethiopia. BMC Public Health. 2018;18(1):462.
30. Du Toit DA, Van Staden SJ. Nursing sociology. 4 ed. South Africa: Van Schaik Publishers 2014.
31. Akeju OO, Wright SC, Maja TM. Lived experience of patients on tuberculosis treatment in Tshwane, Gauteng province. health sa gesondheid. 2017;22(1):259-67.
32. Behzadifar M, Mirzaei M, Behzadifar M, Keshavarzi A, Behzadifar M, Saran M. Patients' Experience of Tuberculosis Treatment Using Directly Observed Treatment, Short-Course (DOTS): A Qualitative Study. Iranian Red Crescent medical journal. 2015;17(4):e20277.
33. Evenden P, Roche A, Karo B, Balasegaram S, Anderson CS. Presentation and healthcare delays among people with tuberculosis in London, and the impact on treatment outcome. BMJ open respiratory research. 2019;6(1):e000468.
34. Lewis SM, McLean Heitkemper M, Bucher L, Harding M, Kwong J, Roberts D. Medical-surgical nursing: Assessment and management of clinical problems. 10 ed: Mosby Elsevier; 2016.
35. Shatil T KN, Yunus FM, Chowdhury AS, Reza S, Islam S, Islam A, Rahman M. What Constitutes Health Care Seeking Pathway of TB Patients: A Qualitative Study in Rural Bangladesh. J Epidemiol Glob Health. 2019 Dec;9(4):300-8.
36. Ushie BA, Jegede AS. The paradox of family support: concerns of tuberculosis-infected HIV patients about involving family and friends in their treatment. AIDS patient care and STDs. 2012;26(11):674-80.
37. Van Manen M. Researching lived experience: Human science for an action sensitive pedagogy: Routledge; 2016.
38. Zuñiga JA. A Woman's Lived Experience With Directly Observed Therapy for Tuberculosis—A Case Study. Health care for women international. 2012;33(1):19-28.

39. Polit D, Beck C. Essentials of nursing research. Ethics. 2012;23(2):145-60.
40. Woo K. Polit & Beck Canadian Essentials of Nursing Research: Lippincott Williams & Wilkins; 2017.
41. Mohebbi Z, Sharif F, Peyrovi H, Rakhshan M, Alizade Naini M, Zarshenas L. Patients' experience of living with irritable bowel syndrome (IBS): A hermeneutic phenomenology. Journal of Qualitative Research in Health Sciences. 2020;9(1):28-37.
42. Magrini J. Phenomenology for educators: Max van Manen and" human science" research. 2012.
43. Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins; 2011.
44. Lincoln YS, Guba EG. Criteria for Assessing Naturalistic Inquiries as Reports. 1988.
45. Mindu C, López-Varela E, Alonso-Menendez Y, Mausse Y, Augusto OJ, Gondo K, et al. Caretakers' perspectives of paediatric TB and implications for care-seeking behaviours in Southern Mozambique. Plos one. 2017;12(9):e0182213.
46. Choudhary G. Caring of Tuberculosis Patients: A Study of Psychosocial Factors. International Journal of Innovative Knowledge Concepts. 2019;7(2):98-104.
47. Rakhmawati W, Nilmanat K, Hatthakit U. Living with Stigma: The Experience of Tuberculosis Patients and Family Caregivers in Indonesia. Indian Journal of Public Health Research & Development. 2019;10(10):2061-2065.
48. Matakanye H, Ramathuba DU, Tugli AK. Caring for Tuberculosis Patients: Understanding the Plight of Nurses at a Regional Hospital in Limpopo Province, South Africa. International journal of environmental research and public health. 2019;16(24):4977.
49. Saifodine A, Gudo PS, Sidat M, Black J. Patient and health system delay among patients with pulmonary tuberculosis in Beira city, Mozambique. BMC public health. 2013;13(1):1-7.
50. Burusie A, Lamaro T, Dessalegn B. Lived Experience of Multi-Drug Resistant Tuberculosis Patient; A Hermeneutic Phenomenological Study. J Prev Med. 2020;5(3):09.
51. Bloom BR, Atun R, Cohen T, Dye C, Fraser H, Gomez GB, et al. Tuberculosis. In: Holmes KK, Bertozzi S, Bloom BR, Jha P, editors. Major Infectious Diseases. Washington (DC): The International Bank for Reconstruction and Development / The World Bank© 2017 International Bank for Reconstruction and Development / The World Bank.; 2017.
52. Organization WH. Global tuberculosis report 2018 Geneva: World Health Organization; 2018 [cited 2020. Available from: http://apps. who. int/iris/bitstream ….
53. Shirzad-Aski H, Hamidi N, Sohrabi A, Abbasi A, Golsha R, Movahedi J. Incidence, risk factors and clinical characteristics of extra-pulmonary tuberculosis patients: a ten-year study in the North of Iran. Tropical medicine & international health : TM & IH. 2020;25(9):1131-9.
54. Sahile Z, Yared A, Kaba M. Patients' experiences and perceptions on associates of TB treatment adherence: a qualitative study on DOTS service in public health centers in Addis Ababa, Ethiopia. BMC Public Health. 2018;18(1):462.
55. Du Toit DA, Van Staden SJ. Nursing sociology. 4 ed. South Africa: Van Schaik Publishers 2014.
56. Akeju OO, Wright SC, Maja TM. Lived experience of patients on tuberculosis treatment in Tshwane, Gauteng province. health sa gesondheid. 2017;22(1):259-67.
57. Behzadifar M, Mirzaei M, Behzadifar M, Keshavarzi A, Behzadifar M, Saran M. Patients' Experience of Tuberculosis Treatment Using Directly Observed Treatment, Short-Course (DOTS): A Qualitative Study. Iranian Red Crescent medical journal. 2015;17(4):e20277.
58. Evenden P, Roche A, Karo B, Balasegaram S, Anderson CS. Presentation and healthcare delays among people with tuberculosis in London, and the impact on treatment outcome. BMJ open respiratory research. 2019;6(1):e000468.
59. Lewis SM, McLean Heitkemper M, Bucher L, Harding M, Kwong J, Roberts D. Medical-surgical nursing: Assessment and management of clinical problems. 10 ed: Mosby Elsevier; 2016.
60. Shatil T KN, Yunus FM, Chowdhury AS, Reza S, Islam S, Islam A, Rahman M. What Constitutes Health Care Seeking Pathway of TB Patients: A Qualitative Study in Rural Bangladesh. J Epidemiol Glob Health. 2019 Dec;9(4):300-8.
61. Ushie BA, Jegede AS. The paradox of family support: concerns of tuberculosis-infected HIV patients about involving family and friends in their treatment. AIDS patient care and STDs. 2012;26(11):674-80.
62. Van Manen M. Researching lived experience: Human science for an action sensitive pedagogy: Routledge; 2016.

63. Zuñiga JA. A Woman's Lived Experience With Directly Observed Therapy for Tuberculosis—A Case Study. Health care for women international. 2012;33(1):19-28.
64. Polit D, Beck C. Essentials of nursing research. Ethics. 2012;23(2):145-60.
65. Woo K. Polit & Beck Canadian Essentials of Nursing Research: Lippincott Williams & Wilkins; 2017.
66. Mohebbi Z, Sharif F, Peyrovi H, Rakhshan M, Alizade Naini M, Zarshenas L. Patients' experience of living with irritable bowel syndrome (IBS): A hermeneutic phenomenology. Journal of Qualitative Research in Health Sciences. 2020;9(1):28-37.
67. Magrini J. Phenomenology for educators: Max van Manen and" human science" research. 2012.
68. Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins; 2011.
69. Lincoln YS, Guba EG. Criteria for Assessing Naturalistic Inquiries as Reports. 1988.
70. Mindu C, López-Varela E, Alonso-Menendez Y, Mausse Y, Augusto OJ, Gondo K, et al. Caretakers' perspectives of paediatric TB and implications for care-seeking behaviours in Southern Mozambique. Plos one. 2017;12(9):e0182213.
71. Choudhary G. Caring of Tuberculosis Patients: A Study of Psychosocial Factors. International Journal of Innovative Knowledge Concepts. 2019;7(2):98-104.
72. Rakhmawati W, Nilmanat K, Hatthakit U. Living with Stigma: The Experience of Tuberculosis Patients and Family Caregivers in Indonesia. Indian Journal of Public Health Research & Development. 2019;10(10):2061-2065.
73. Matakanye H, Ramathuba DU, Tugli AK. Caring for Tuberculosis Patients: Understanding the Plight of Nurses at a Regional Hospital in Limpopo Province, South Africa. International journal of environmental research and public health. 2019;16(24):4977.
74. Saifodine A, Gudo PS, Sidat M, Black J. Patient and health system delay among patients with pulmonary tuberculosis in Beira city, Mozambique. BMC public health. 2013;13(1):1-7.
75. Burusie A, Lamaro T, Dessalegn B. Lived Experience of Multi-Drug Resistant Tuberculosis Patient; A Hermeneutic Phenomenological Study. J Prev Med. 2020;5(3):09.
76. Bloom BR, Atun R, Cohen T, Dye C, Fraser H, Gomez GB, et al. Tuberculosis. In: Holmes KK, Bertozzi S, Bloom BR, Jha P, editors. Major Infectious Diseases. Washington (DC): The International Bank for Reconstruction and Development / The World Bank© 2017 International Bank for Reconstruction and Development / The World Bank.; 2017.
77. Organization WH. Global tuberculosis report 2018 Geneva: World Health Organization; 2018 [cited 2020. Available from: http://apps. who. int/iris/bitstream ....
78. Shirzad-Aski H, Hamidi N, Sohrabi A, Abbasi A, Golsha R, Movahedi J. Incidence, risk factors and clinical characteristics of extra-pulmonary tuberculosis patients: a ten-year study in the North of Iran. Tropical medicine & international health : TM & IH. 2020;25(9):1131-9.
79. Sahile Z, Yared A, Kaba M. Patients' experiences and perceptions on associates of TB treatment adherence: a qualitative study on DOTS service in public health centers in Addis Ababa, Ethiopia. BMC Public Health. 2018;18(1):462.
80. Du Toit DA, Van Staden SJ. Nursing sociology. 4 ed. South Africa: Van Schaik Publishers 2014.
81. Akeju OO, Wright SC, Maja TM. Lived experience of patients on tuberculosis treatment in Tshwane, Gauteng province. health sa gesondheid. 2017;22(1):259-67.
82. Behzadifar M, Mirzaei M, Behzadifar M, Keshavarzi A, Behzadifar M, Saran M. Patients' Experience of Tuberculosis Treatment Using Directly Observed Treatment, Short-Course (DOTS): A Qualitative Study. Iranian Red Crescent medical journal. 2015;17(4):e20277.
83. Evenden P, Roche A, Karo B, Balasegaram S, Anderson CS. Presentation and healthcare delays among people with tuberculosis in London, and the impact on treatment outcome. BMJ open respiratory research. 2019;6(1):e000468.
84. Lewis SM, McLean Heitkemper M, Bucher L, Harding M, Kwong J, Roberts D. Medical-surgical nursing: Assessment and management of clinical problems. 10 ed: Mosby Elsevier; 2016.
85. Shatil T KN, Yunus FM, Chowdhury AS, Reza S, Islam S, Islam A, Rahman M. What Constitutes Health Care Seeking Pathway of TB Patients: A Qualitative Study in Rural Bangladesh. J Epidemiol Glob Health. 2019 Dec;9(4):300-8.

86. Ushie BA, Jegede AS. The paradox of family support: concerns of tuberculosis-infected HIV patients about involving family and friends in their treatment. AIDS patient care and STDs. 2012;26(11):674-80.

87. Van Manen M. Researching lived experience: Human science for an action sensitive pedagogy: Routledge; 2016.

88. Zuñiga JA. A Woman's Lived Experience With Directly Observed Therapy for Tuberculosis—A Case Study. Health care for women international. 2012;33(1):19-28.

89. Polit D, Beck C. Essentials of nursing research. Ethics. 2012;23(2):145-60.

90. Woo K. Polit & Beck Canadian Essentials of Nursing Research: Lippincott Williams & Wilkins; 2017.

91. Mohebbi Z, Sharif F, Peyrovi H, Rakhshan M, Alizade Naini M, Zarshenas L. Patients' experience of living with irritable bowel syndrome (IBS): A hermeneutic phenomenology. Journal of Qualitative Research in Health Sciences. 2020;9(1):28-37.

92. Magrini J. Phenomenology for educators: Max van Manen and" human science" research. 2012.

93. Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins; 2011.

94. Lincoln YS, Guba EG. Criteria for Assessing Naturalistic Inquiries as Reports. 1988.

95. Mindu C, López-Varela E, Alonso-Menendez Y, Mausse Y, Augusto OJ, Gondo K, et al. Caretakers' perspectives of paediatric TB and implications for care-seeking behaviours in Southern Mozambique. Plos one. 2017;12(9):e0182213.

96. Choudhary G. Caring of Tuberculosis Patients: A Study of Psychosocial Factors. International Journal of Innovative Knowledge Concepts. 2019;7(2):98-104.

97. Rakhmawati W, Nilmanat K, Hatthakit U. Living with Stigma: The Experience of Tuberculosis Patients and Family Caregivers in Indonesia. Indian Journal of Public Health Research & Development. 2019;10(10):2061-2065.

98. Matakanye H, Ramathuba DU, Tugli AK. Caring for Tuberculosis Patients: Understanding the Plight of Nurses at a Regional Hospital in Limpopo Province, South Africa. International journal of environmental research and public health. 2019;16(24):4977.

99. Saifodine A, Gudo PS, Sidat M, Black J. Patient and health system delay among patients with pulmonary tuberculosis in Beira city, Mozambique. BMC public health. 2013;13(1):1-7.

100. Burusie A, Lamaro T, Dessalegn B. Lived Experience of Multi-Drug Resistant Tuberculosis Patient; A Hermeneutic Phenomenological Study. J Prev Med. 2020;5(3):09.

Original article

UNIVERSIDAD
DE ANTIOQUIA
1803

Efficacy of Motivational Interviewing and Brief Interventions on tobacco use among healthy adults: A systematic review of randomized controlled trials

Rajesh Kumar[1]
https://orcid.org/0000-0002-7504-5620
Maya Sahu[2]
https://orcid.org/ 0000-0003-3645-0815
Tamar Rodney[3]
https://orcid.org/0000-0002-0187-985X

Efficacy of Motivational Interviewing and Brief Interventions on tobacco use among healthy adults: A systematic review of randomized controlled trials

Abstract

Objective. To assess the effectiveness of a brief intervention and motivational interviewing in reducing the use of different tobacco-related products in adults **Methods.** For this systematic review, PubMed, Web of Science, and PsychINFO databases were electronically searched for randomized controlled trials on the effect of a brief intervention and / or motivational interview on tobacco reduction among healthy adults published between January 1, 2011 to January 1, 2021. Data from eligible studies were extracted and analyzed. CONSORT guidelines were used to assess the quality of the studies by two reviewers for the included studies. The titles and abstracts of the search results were screened and reviewed by two independent reviewers for eligibility criteria per the inclusion and exclusion criteria. Cochrane review criteria

1 Associate Professor, College of Nursing, All India Institute of Medical Sciences (AIIMS) Rishikesh Uttarakhand, India.
Email: rajeshrak61@gmail.com.
Corresponding author

2 Assistant Professor. College of Nursing Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India. Email: mayamonsahu@gmail.com

3 Assistant Professor. Johns Hopkins School of Nursing, Baltimore MD, USA.
Email: trodney1@jhu.edu

Conflicts of interest: None.

Receipt: December 27, 2021.

Approved: June 6, 2022.

How to cite this article: Efficacy of Motivational Interviewing and Brief Interventions on tobacco use among healthy adults: A systematic review of randomized controlled trials. Invest. Educ. Enferm. 2022; 40(3):e03.

DOI: https://doi.org/10.17533/udea.iee.v40n3e03.

were used to assess the risk of bias in included studies. **Results.** A total of 12 studies were included in the final data extraction of 1406 studies. The brief intervention and motivational interviewing showed varied effects on tobacco use reduction among adults at different follow-ups. Seven of the 12 studies (58.3%) reported a beneficial impact on reducing tobacco use. Pieces of evidence on biochemical estimation on tobacco reduction are limited compared to self-reports, and varied results on quitting and tobacco cessation with different follow-ups. **Conclusion.** The current evidence supports the effectiveness of a brief intervention and motivational interviewing to quit tobacco use. Still, it suggests using more biochemical markers as outcome measures to reach an intervention-specific decision. While more initiatives to train nurses in providing non-pharmacological nursing interventions, including brief interventions, are recommended to help people quit smoking.

Descriptors: motivational interviewing; tobacco use cessation; tobacco use; adult.

Eficacia de la entrevista motivacional y de las intervenciones breves sobre el consumo de tabaco en adultos sanos: Una revisión sistemática de ensayos controlados aleatorizados

Resumen

Objetivo. Evaluar la eficacia de una intervención breve y de la entrevista motivacional para reducir el consumo de diferentes productos relacionados con el tabaco en adultos. **Métodos.** Para esta revisión sistemática, se buscaron en las bases de datos PubMed, Web of Science y PsychINFO ensayos controlados aleatorizados sobre el efecto de una intervención breve y/o una entrevista motivacional en la reducción del consumo de tabaco entre adultos sanos, que hubieran sido publicados entre el 1 de enero de 2011 y el 1 de enero de 2021. Los títulos y los resúmenes de los artículos incluidos fueron evaluados por dos revisores independientes para determinar los criterios de elegibilidad, se analizó la calidad de los estudios con la guía CONSORT y se utilizaron los criterios de Cochrane para evaluar el riesgo de sesgo. **Resultados.** Se incluyeron un total de 12 de los 1406 estudios que arrojó la búsqueda. La intervención breve y la entrevista motivacional mostraron efectos variados en la reducción del consumo de tabaco entre los adultos en diferentes seguimientos. Siete de los 12 estudios (58.3%) informaron de un impacto beneficioso en la reducción del consumo de tabaco. La utilización de indicadores bioquímicos de la reducción del consumo de tabaco fueron limitados en comparación con los autoinformes. Los resultados sobre el abandono y la cesación del tabaco fueron variados con diferentes seguimientos. **Conclusión.** La evidencia apoyó la efectividad de una intervención breve y de la entrevista motivacional para la cesación del consumo de tabaco. Sin embargo, se sugiere realizar más estudios con marcadores bioquímicos como medidas de resultado para llegar a una decisión específica de la intervención. Se recomienda formar a los enfermeros en la realización de intervenciones de enfermería no farmacológicas, incluidas las intervenciones breves, para ayudar a las personas a dejar de fumar.

Descriptores: entrevista motivacional; cese del uso de tabaco; uso de tabaco; adulto.

Eficácia da entrevista motivacional e intervenções breves sobre o uso de tabaco em adultos saudáveis: uma revisão sistemática de ensaios clínicos randomizados

Resumo

Objetivo. Avaliar a eficácia de uma intervenção breve e entrevista motivacional na redução do uso de diferentes produtos relacionados ao tabaco em adultos. **Métodos.** Para esta revisão sistemática, se buscou nas bases de PubMed, Web of Science e PsychINFO ensaios controlados aleatórios sobre o efeito de uma breve intervenção e/ou entrevista motivacional na redução do uso de tabaco entre adultos saudáveis, publicados entre 1º de janeiro de 2011 e 1º de janeiro de 2021. Os títulos e resumos dos artigos incluídos foram avaliados por dois revisores independentes para critérios de elegibilidade, a qualidade do estudo foi avaliada usando a diretriz CONSORT e os critérios Cochrane foram usados para avaliar o risco de viés. **Resultados.** Um total de 12 dos 1.406 estudos retornados pela busca foram incluídos. Intervenção breve e entrevista motivacional mostraram efeitos mistos na redução do uso de tabaco entre adultos em diferentes acompanhamentos. Sete dos 12 estudos (58.3%) relataram um impacto benéfico na redução do uso de tabaco. O uso de indicadores bioquímicos de redução do uso de tabaco foi limitado em relação ao autorrelato. Os resultados sobre parar de fumar e parar de fumar foram variados com diferentes seguimentos. **Conclusão.** As evidências apoiaram a eficácia de uma intervenção breve e entrevista motivacional para a cessação do uso do tabaco. No entanto, mais estudos com marcadores bioquímicos como medidas de resultados são sugeridos para chegar a uma decisão de intervenção específica. Recomenda-se que os enfermeiros sejam treinados na execução de intervenções de enfermagem não farmacológicas, incluindo intervenções breves, para ajudar as pessoas a parar de fumar.

Descritores: entrevista motivacional; abandono do uso de tabaco; uso de tabaco; adulto.

Introduction

Tobacco in any form is harmful and affects millions of lives every year.(1) In 2017, 8 million lives were lost due to smoking-related diseases.(2) Tobacco-related deaths are rising even after a decline in tobacco use trends because of the chronic nature of conditions.(3) In 2000, around 33.3% of the global population over 15 years old were current tobacco users.(3) The negative consequences of tobacco use are well known and extend beyond individuals and countries regarding increasing health care expenditure and loss of productive life.(4) The tobacco consumption trend was three times higher in males than females in 2000, which was increased to four times in 2015 and is projected to be five times by 2025.(1,3) Notably, the detrimental effects of tobacco use gravely affected lower socio-economic populations with higher smoking prevalence.(5) However, tobacco use practices are varied and influenced by the locally available tobacco products in the different regions worldwide.(6)

Smoking is one of the modifiable risk factors for many life-threatening health problems, including respiratory and cardiovascular health and genitourinary problems.(7) It has been estimated that 50% of smokers who start smoking in adolescence die due to tobacco-related health problems.(8) Thus, an effective measure to control tobacco addiction is paramount. Implementing a wide range of interventions and strengthening tobacco control policy, including taxation, ban on tobacco use in public places, restriction on advertising of tobacco products, and creating smoke-free zones in educational institutions, brought a substantial decline in tobacco use in recent decades.(4) In addition to government initiatives to curb tobacco use, many pharmacological and non-pharmacological approaches are also involved in reducing tobacco-associated mortality and the burden of diseases.(6,9) Earlier studies reported that using a combination of pharmacologic and non-pharmacologic intervention is highly effective in reducing tobacco use.(10–12) However, non-pharmacological interventions have advantages over pharmacological interventions, including no side effects, long-term behavior changes,(13) knowing the real health hazards of long-term tobacco use, and cost-effective to show higher compliance.(11,12,14)

Non-pharmacologic interventions for tobacco cessation include telephone counseling, individual and group counseling, health care provider interventions, exercise programs, and self-help programs.(12) Brief intervention or motivational interview is a brief yet realistic strategy offered to those who have a low motivation to quit.(15) Brief intervention is goal-directed but non-directive communication designed to improve motivation for change in quit behavior by eliciting feedback to plan for change.(12,16–20) The terms brief intervention (BI) and motivational interview (MI) are used with a common principle of active engagement of the client in the process of reduced use and teaching alternative coping skills.(21) These interventions are based on the philosophy that the client holds a key role in showing commitment and successful recovery.(22) Brief intervention sometimes follows the principles of the motivational interview to motivate the specific behavior of an individual to reduce or quit substance use.(23)

However, these interventions are substantially modified in the delivery approach, format, and content in earlier published work.(12) Brief intervention primarily focuses on present concerns and stressors rather than exploring the historical antecedents of an individual and is conducted by a trained therapist.(20,24) Earlier work on the efficacy of brief intervention reported evidence that brief intervention increases the motivation to quit short-term use.(18,25) However, the evidence on long-term effects of brief interventions is equivocal, with no reduction of tobacco use at three months while higher self-reported abstinence at 1-year post-brief intervention.(26) Conversely, the brief intervention was found to be effective in improving quit rates, prolonging abstinence, and improving self-reported continuous abstinence among smokers at six months(27) and 1-year post-intervention(28) in other work. Still, there is a lack of consistent evidence on brief interventions to reduce use or quit tobacco use among the adult population.

Nurses are an essential attribute of the health care system and play a vital role in delivering various interventions. It is natural to expect that nurses with adequate knowledge and skills in the brief intervention will do more to help their patients quit smoking. This meta-analysis will highlight the need for encouragement and opportunities to nurses to receive training on smoking cessation interventions. In addition, this will be insightful for the nurses to understand the significance of a non-pharmacological intervention to quit smoking. Towards this end, training nurses in the brief intervention using motivational interviews may be helpful to smokers and their families. Consequently, this systematic review aims to assess the effectiveness of the brief intervention in reducing tobacco use among adults.

Methods

A literature review was conducted with online databases PubMed, Web of Science, and PsychINFO. A literature search was completed using Boolean operators and truncations for the following key terms: (1) "Brief Intervention, (2) OR Screening and Brief Intervention" "tobacco products" AND (3) "Tobacco OR "tobacco products," (MESH terms are also included in the search). The problem/disease was tobacco use among adults in the experimental group. The primary outcomes of interest were cessation in tobacco use, motivation/readiness to quit, reduction in tobacco quantity, days, abstinence days, quit attempts, and point prevalence measured by self-reported methods or biochemical verification at different intervals.

Selection criteria and data extraction. The inclusion criteria for the studies included in this review were as follows: (1) the content of the article mainly focused on the provision of brief intervention and/or motivational interview for tobacco use reduction or cessation; (2) the participants were current smokers and adults; (3) the articles were published in peer-reviewed journals within the last ten years; (4) the study method reflected a randomized control trial (RCT). Articles were excluded if they focused primarily on other pharmacologic interventions, included any other substance use, were not designed as an RCT, or had mixed interventions. The search strategy was based on the population, intervention, control, and outcomes (PICO) approach with a PICO question, 'does *motivational interviewing and brief interventions helpful in reducing tobacco use in healthy adults*?'***;*** where P- Healthy tobacco users, I- Motivational Interview and/or Brief Intervention, C- Usual care or on other interventions and O- Smoking cessation.(29) A total of 1406 articles were included for a title and abstract review; at least two team members discussed discrepancies. 77 articles met the inclusion criteria for a full-text review, and 12 articles were selected for data extraction. See the PRISMA framework (Figure 1) that guided the review process.(30)

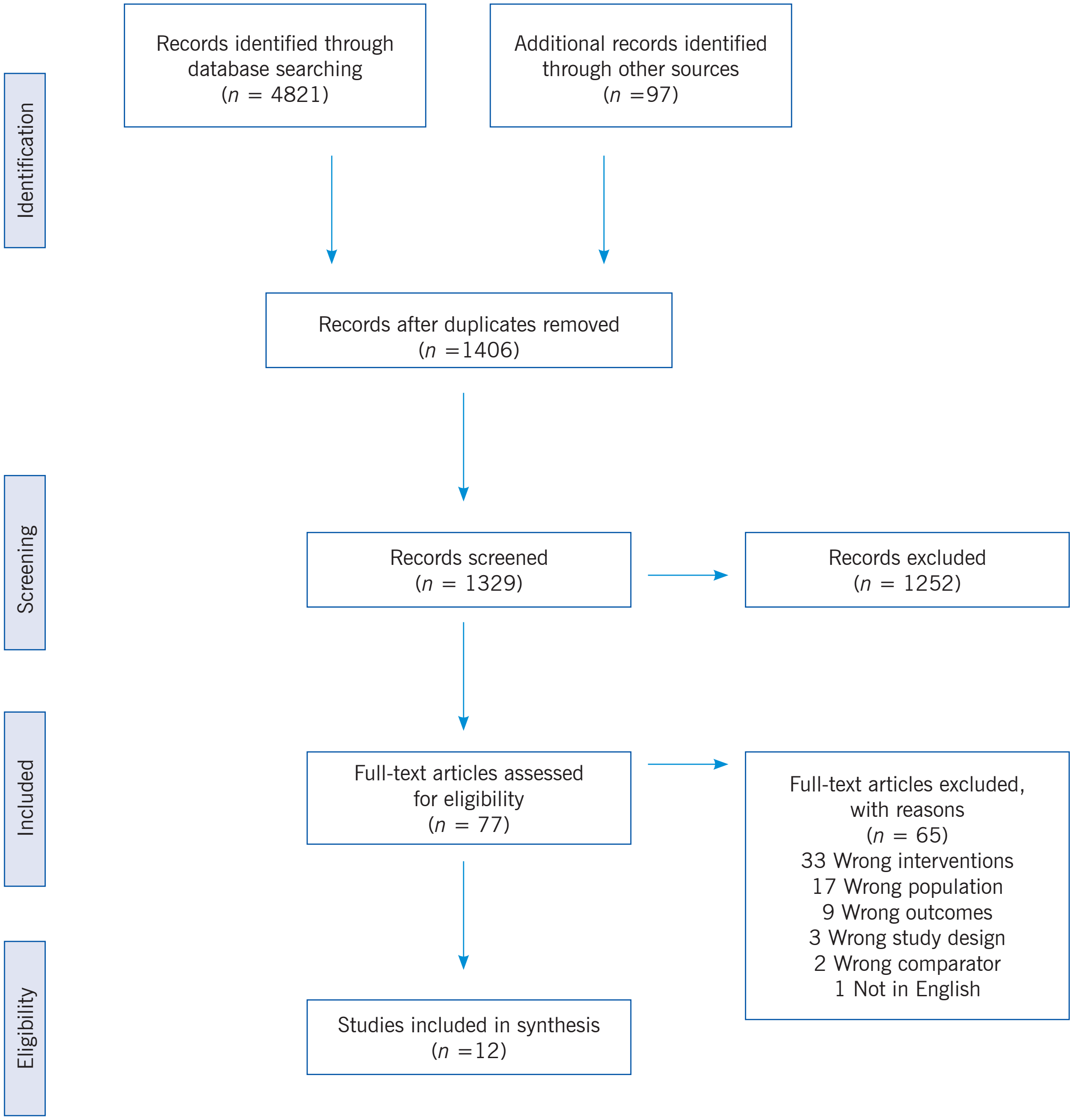


Figure 1. PRISMA Flow Diagram

Bias assessment. Cochrane review criteria were used to assess the risk of bias in included studies in the review (Table 1).(31) All studies were evaluated on six evidence-based domains: allocation concealment, random sequence generation, participants and personnel blinding, outcome blinding, incomplete outcome data, and selective reporting.(31) Allocation concealment refers to concealing the information on the randomization process to the subjects. Random sequence generation occurs when study participants are not aware of the random sequence generation process. Blinding of participants and personnel refers to when participants and team members do not know the intervention or control condition to which subjects are assigned. Blinding of outcomes assessment refers to whether outcome measurement could have been changed by prior intervention knowledge to participants or team members delivered in work. Selective reporting refers to presenting only findings of interest. An incomplete outcome does not consider attrition while submitting the result.(31) For each study, these components are shown in 'high risk,' 'low risk,' or 'unclear' as written in the published version of the manuscript to decide on bias assessment. In data extraction, two authors assessed each study for bias. The authors discuss the risk bias criteria of the study using a checklist and conclude. The discrepancies were resolved after a discussion with the third author Table 1.

Table 1. Quality assessment of the included studies

Sources	Random sequence allocation	Allocation concealment	Blinding of participants / personnel	Blinding of outcomes assessment	Complete outcomes data	Avoidance of selective reporting	Quality of study*
Catley *et al*.(15)	✓	✓	X	X	✓	✓	Moderate
Mujika *et al*.(30)	✓	✓	✓	X	✓	✓	High
Virtanen *et al*.(32)	✓	✓	X	X	✓	✓	Moderate
Cook *et al*.(33)	✓	?	✓	X	✓	✓	Moderate
Steinberg *et al.*(34)	✓	?	?	?	✓	✓	Moderate
Ho *et al*.(35)	✓	✓	X	X	✓	✓	Moderate
Cabriale *et al*.(36)	✓	?	?	?	✓	✓	Low
Krigel *et al.*(37)	✓	✓	?	?	✓	✓	Moderate
Meyer *et al.*(38)	✓	?	✓	✓	✓	✓	High
Schane *et al*.(39)	✓	?	?	?	✓	✓	Low
Leavens ELS *et al.*(40)	✓	?	X	?	✓	✓	Low
Cabriales *et al.*(41)	✓	?	X	X	✓	✓	Low

Results

The electronic search produced a total of 3162 articles. 1406 articles were found suitable after removing duplicate records. Abstracts of all articles were reviewed independently by two reviewers. A total of 1262 articles were excluded after careful scrutiny of abstracts. Full-text articles were retrieved for 79, and after reviewing these articles independently, 67 articles were further excluded for a specific reason. After applying the eligibility criteria, 12 articles were included in the present review. The PRISMA flow diagram (Figure 1) summarizes the study selection and scrutiny process used for the articles. A summary of the selected studies summarized by year of publication, author, setting, type of study, sampling techniques, sample size, eligibility criteria (inclusion and exclusion), intervention, outcomes, strengths and limitations, and any other specific notes to the study.

Study characteristics. Of the 12 included studies, eight were conducted in the United States, one in Sweden, one in Hong Kong, one in Germany, and one in Spain. All studies used a randomized controlled trials design with one or another trial feature, including allocation concealment and blinding. Of the 12 studies, 3 studies used brief intervention or brief advise,(30,32,35,38,41) 6 studies used motivational interviews,(15,30,33,34,37,40) and one study used brief counseling on harm to self and harm to others (39) and quit immediately award model based on brief intervention approach. Seven of the 12 studies (58.3%) reported a beneficial effect of brief advice or motivational interview on reducing tobacco use (Table 2).

Motivational Interviewing (MI). The concept and use of motivational interviewing as an intervention is not new in substance use,(42) smoking reduction,(43) chronic lifestyle disease,(44) health behavior,(45) medication adherence,(46,47) oral health in adolescents,(48) and chronic pain management.(49) The concept was published by Miller & Rollnick and presented as a therapeutic effort to strengthen personal motivation and commitment to a specific goal by eliciting and exploring the individual's reason for a change in behavior with compassion and acceptance.(16)

Motivational interviewing (MI) is a patient-centered, directive therapeutic style to improve readiness to change behavior by resolving the ambivalence.(43) MI was found to be an effective method in a series of addictive behaviors.(50) Some research(33) among healthy adult smokers tested multiple interventions revealed a promising effect of motivational interviewing on smoking reduction. However, the study concluded(50) that motivational interviewing and other interventions will produce the most consistent and marked reduction in smoking. A contrasting study(15) used motivational interviewing over health education and brief advice but did not report any change in quit attempts at 6 months. However, the same study reported increased cessation of medication use, motivation, and confidence to quit compared to brief advice, which further indicates the effectiveness of MI in behavior changes to quit smoking. In a study(34) at a Northeastern US State, daily smokers attended brief motivational interviewing and significantly reduced cigarette use. Likewise, motivational interviewing effectively improved quitting smoking among nurses over brief advice in a study conducted in Spain.(30) However, in another work(37) on college tobacco smokers, the use of motivational interviewing over health education (HE) showed no significant reduction in motivation to quit, abstinence, and quit attempts. Likewise, the consistent findings are presented in earlier studies(15,51) that reported no significant advantage of MI on smoking cessation compared to alternative interventions. In a recent work conducted in the Midwest United States, a brief motivational interview showed no improvement in reducing water pipe use(40); however, MI was found to improve awareness of risk perceptions, commitment, and confidence to quit waterpipe (WP) smoking.

Furthermore, in a recent meta-analysis, MI reported a modest yet significant beneficial increase in quitting rates in a group that utilized motivational interviewing. Further, findings revealed that long-term motivational interviewing by a primary physician or counselor is more effective in quitting tobacco. However, there is no specific evidence on the duration and number of MI sessions on quitting the behavior. Another meta-analysis(52) reported a greater likelihood of abstinence behavior in the experimental arm comprising adults and adolescents when compared to the comparison group. Still, only a few older interventions and meta-analyses demonstrate the effectiveness of motivational interviewing in smoking cessation. There is evidence that motivational interviewing is less effective in low-motivation patients.(18,53) However, the conclusive evidence to prove the quality and fidelity of MI implementation remains contentious concerning its effectiveness in smoking reduction.

Brief Intervention. Brief intervention or advice for harmful substance use has been practiced for many years. (54) It aims to identify the current and potential problems with substance use and motivate people to change high-risk behavior.(55) Brief intervention is a personalized, supportive and non-judgmental approach to treatment. (55) It is also defined as a verbal 'stop smoking' message loaded with harmful effects of tobacco use.(56) Brief intervention can be used in various methodologies, including unstructured counseling and feedback to formal structured treatment.(57–59) World Health Organization uses education, simple advice, and brief counseling as alternative types of brief interventions for high-risk individuals with alcohol use disorders.(60) Brief intervention also uses screening and referral services and is therefore called screening, brief intervention, and referral to treatment (SBIRT).(61) Brief therapy can help motivate an individual to change his high-risk behavior at a different stage of behavior change.(62) The stage of change model proposed by Prochaska & DiClemente, helps clinicians tailor a brief intervention to the stage of behavior change and the client's needs.(63)

Brief interventions for tobacco use disorders aim to enhance motivation for change and provide evidence-based resources to reduce usage or complete cessation of tobacco products. The 5A's approach (Ask, Advise, Assess, Assist, & Arrange) is an evidence-based approach that helps tobacco users in different settings with motivational strategies in a systematic fashion. (64) In addition, FLAGS-Feedback, Listen, Advice, Goals, Strategies and 'FRAMES'-Feedback, Responsibility, Advice, Menu of options, Empathy, and Self-efficacy, are other frameworks used to deliver brief interventions.(65)

The brief intervention is effective in many ways, including cost-effectiveness in terms of time and money,(66) increased abstinence rate and days,(35,67) and early days of discharge, and regular follow-ups (68). Similarly, a more intensive planned brief advice (>20 minutes) may augment the effect on quit rate and 6-months abstinence compared to minimal brief advice.(69) Additionally, the use of brief components in AWARD [Ask, Warn, Advice, Refer, Do-It Again) model, and cut down to quit: [CDTQ]), reported a higher quit rate in the former group. (35) Furthermore, brief advice in combination with tailored practice was highly effective on 7-days point prevalence and 7-days and 6-months abstinence rate among adult smokers. (38) Brief counseling also reported a significant reduction in quit rate, abstinence phenomenon, improved motivation, and self-efficacy in a regular follow-up in a group of nondaily smokers.(36,39) Conversely, brief therapy showed no significant changes in abstinence rate among adults who underwent immediate and delayed intervention at the family health clinic U.S.-Mexico border,(41) and hence, the efficacy of brief therapy has been questioned in recent years.(70)

Further, brief treatment can be helpful for varied kinds of the population, including adolescents, older smokers, smokers with mental illness and co-morbidities, alcohol users, and pregnant women across different racial and ethnic groups. (66,70) However, current or former tobacco smokers who were willing or unwilling to make quit attempts are the most eligible groups to attend the brief intervention.(66)

Discussion

The use of tobacco has innumerable adverse effects on health. The present review aimed to assess the effectiveness of a brief intervention in reducing tobacco use among adults. The review findings indicate that brief intervention alone or combined with Motivational Interviews or Health Education was effective, supported by previous results.(15,52) In contrast, an earlier systematic review documented that motivational interviewing was modestly successful in promoting smoking cessation compared with usual care or brief advice.(25) Conversely, motivation to quit was higher after Brief Advice than MI.(71) Another recent systematic review conducted with 37 studies reported insufficient evidence to show whether MI helps people stop smoking compared with no intervention, as an addition to other types of behavioral support, or compared with different kinds of behavioral support for smoking cessation.(72)

Modality and intensity of interventions with follow-up and primary outcomes were also determining factors for the effectiveness of the studies. In the current review, the intervention modality varied in face-to-face sessions or a combination of face-to-face and telephone sessions. Initial sessions were conducted face-to-face, and the follow-up was done over the telephone for most of the study, which is usual with much other previous work.(72) Brief intervention provided through telephone has great significance in the present scenario. Amid the COVID-19 pandemic, when individuals have restricted movement or limited resources available, virtual or phone delivered brief intervention can play a significant role in helping the adults quit smoking or reduce tobacco use. A previous study has documented moderate-certainty evidence of proactive telephone counseling in increasing the quit rates in smokers who seek help from quitlines.(73)

The included studies had intervention sessions as little as one brief session(37) to four sessions based on Motivational Interviews.(30) Prior literature suggests that multiple sessions might increase the likelihood of quitting over single-session treatment, but positive outcomes were reported in both cases.(25) However, there is no specific evidence on the duration and number of MI sessions on quitting the behavior.(72)The current review found that the included studies had a follow-up of the intervention ranging from 3 months to 12 months. However, face-to-face or telephone counseling follow-up did not show a significant effect of an intervention. However, reduction of smoking behavior or abstinence was not sustained over time. These findings were supported by a previous work where smoking abstinence averaged 10% at 1 month and around 2% at 3, 6, and 12 months.(71) At present, evidence is unclear on the optimal number of follow-up calls.(25,43)

The primary outcomes of the studies were smoking abstinence, reduction in smoking rates, and an increase in motivation to quit. However, outcomes other than cessation may be essential to assess when determining the effects of brief interventions for tobacco use. Hence, different outcomes were self-efficacy, motivation, and changes in depression over the studies. Biological tests to confirm tobacco abstinence provided more reliable findings than self-reported abstinence.

Intervention programs on Smoking cessation, such as brief advice, motivational interviews, or the 5A approach (Ask, Advise, Assess, Assist, and Arrange), are effective among specific populations or specialized clinical settings.(45,74) Professional support and cessation interventions or medications significantly increase the chance of successfully quitting.(3) A systematic review and meta-synthesis explored smokers' perspectives regarding smoking cessation and reported that lack of motivation to quit was one of the significant issues they felt for tobacco cessation.(75) Nonetheless, these non-pharmacological interventions had shown efficacy similar to the pharmacological intervention(74) with additional benefits of cost-effectiveness, competency of the provider, and accessibility to the treatment center.

Tobacco-related deaths and disabilities are increasing around the globe because of the continued use of different kinds of tobacco products. Many earlier studies confirmed the beneficial effect of a brief intervention based on motivational principles to reduce tobacco use. Nurses' role is precise in tobacco cessation to endorse the International Council of Nurses statement to integrate tobacco use prevention and cessation as part of their regular nursing practice.(76) This systematic review indicates the potential benefits of brief intervention, which can be a breakthrough for nurses in tobacco reduction around the globe. However, nursing policymakers should incorporate smoking cessation interventions as a part of standard practice for all the patients. Hence, brief intervention or motivational interviews provide promising results in cessation or reduction of tobacco use which needs to be further supported by evidence.

The present review should be appraised under its many limitations and strengths. Among its strengths is that it provides coverage of randomized controlled trials that included brief intervention and motivational interviewing on smoking and other tobacco use among adults. This review included samples of those with clinical and non-clinical samples using tobacco. The major strength of this review lies in the inclusion of RCT studies that give a clear description of participants' characteristics, methodology, and implemented intervention. Secondly, the risk of bias assessment showed that most studies had low to moderate risk. This review highlights several opportunities for future research, such as brief intervention or motivational interview combined with other adjuncts to improve outcomes and further research integration of these interventions with combination therapies of psychotherapeutic and pharmacological interventions.

In terms of limitations, the heterogenicity of the selected studies did not allow to reach a specific conclusion. Studies included in this review used different brief intervention and motivational interview forms, making it challenging to synthesize the results and suggest a potential use of these interventions in day-to-day practice. Heterogeneity in population also made it challenging to generalize the findings across all people around the globe. Further, studies involved in the review only investigated tobacco cessation among healthy adults may confer unique limitations on the generalizability of results. The authors suggest interpreting and using review findings cautiously due to variations in treatment fidelity and the inclusion of a limited number of studies.

Conclusion. Over time there have been changes in treatment modalities for tobacco cessation. Preference for non-pharmacological intervention over pharmacological has led the researchers to find supportive evidence. The present review highlights the effectiveness of a brief intervention and motivational interviewing in reducing tobacco use among adults. It also demonstrates that the effects are far-reaching. However, it remains inconclusive which intervention is more effective than the other. Future longitudinal studies or RCTs with direct comparison of different interventions may further refine the evidence-based practice on tobacco cessation among adults.

Funding Sources: None declared.

Table 2. Characteristics of included studies in the review

Reference 15: Catley D, Goggin K, Harris KJ, Richter KP, Williams K, Patten C, et al. A randomized trial of motivational interviewing: Cessation induction among smokers with low desire to quit. Am. J. Prev. Med. 2016; 50(5):573–83.

Population and sample size: Setting: Midwestern city, Kansas, USA. Sample: Adult smokers. Sample size: 255. Age (Mean, SD): 45.8 [SD = 10.9]). Design: Single site, parallel-group RCT design. Randomization**:** Computer-generated random assignment, Imbalanced allocation (2:2:1) for three interventions

Inclusion criteria: Adult age 18 years & currently smoking one or more cigarettes per day, able to speak English, have stable reachability, no intention to get pregnant in the next 6 months, not using any medication for smoking cessation, have no cessation plan in the next 7 days and confirm tobacco use on CO≥7 ppm. **Exclusion criteria:** N/A

Intervention and comparators: Motivational interview (MI, *n*=102) Versus Health education (HE, *n* =102) Versus Brief advise (BA, *n* =52)

Primary outcomes: The health education group significantly shows a higher abstinence rate at 6-month follow-up, Motivational interviews and health education groups showed a more significant increase in reduced medication use, motivation, and confidence to quit over the brief advice group, Health advice was relatively found better to improve motivation than motivational interviewing.

Others: Strengths: Biochemical verification of 7-day smoking point prevalence by saliva testing, use of intensity match comparison design to test the exact effect of MI over health education. **Limitations:** Self-reported measures to test motivation, desire to quit, quit attempts, and point

prevalence, the study was limited to willing to quit smokers, and findings may not be generalizable to unmotivated smokers.

Any other Notes: Follow-up for all three interventions at 3 months and 6 months. Missing data handling using appropriate measures to avoid bias in the study.

Reference 30: Mujika A, Forbes A, Canga N, de Irala J, Serrano I, Gascó P, et al. Motivational interviewing as a smoking cessation strategy with nurses: an exploratory randomised controlled trial. Int. J. Nurs. Stud. 2014; 51(8):1074–82.

Population and sample size: Setting: Clinical Universidad de Navarra (CUN) in Pamplona (Navarra), teaching hospital, North Spain. Sample: Nurses. Sample size: 30. Age (Mean, SD): 40.15[SD = 9.45]). Design: Two groups parallel experimental design. Randomization: Computer generated random allocation method, and seal the opaque envelope for location concealment.

Inclusion criteria: Nurses who smoke and are ready to participate in the study and nurses work in the hospital irrespective of thinking of quit or not.] **Exclusion criteria:** N/A.

Intervention and comparators: Motivational interview (*n* =15)/ brief advices (*n* =15)

Primary outcomes: More nurses in the intervention arm had quit smoking with an absolute difference of 33.3% 95% CI (2.6-58.2). Progress in the stage of changes was more significant in nurses who attended a motivational interview.

Others: Strengths: Biochemical verification of urine cotinine level for recent smoking detection and Micro+Smokerlyzer use for expired Carbon Monoxide (CO) detection for enrollment of the subjects. Detection of self-report of abstinence by biochemically urine cotinine measurement. Intention-to-treat analysis to control bias. **Limitations:** Use of self-reported measures to report nicotine dependence, desire, and readiness to quit. Very low small size to study the effectiveness of the intervention. No follow-up to measure smoking cessation. No sample size analysis; small sample size.

Any other Notes: Collection of data at baseline, end of the intervention, and 3 months after the intervention to cross-check adherence. High satisfaction with the acceptability and feasibility of the intervention indicates the genuine interest of the participants. Use of one-to-one sessions with each participant.

Reference 32. Virtanen SE, Zeebari Z, Rohyo I, Galanti MR. Evaluation of a brief counseling for tobacco cessation in dental clinics among Swedish smokers and snus users. A cluster randomized controlled trial (the FRITT study). Prev. Med. 2015; 70:26-32.

Table 2. Characteristics of included studies in the review. (Cont.)

Population and sample size: Setting: Gavleborg and Sodermanland county, Sweden. Sample: Patients currently using tobacco daily. Sample size: 467. Age (Mean, SD): 45.57 [SD = 14.91]). Design: Randomized Cluster design. Randomization: Setting randomization with a 1:1 computer-generated random number.

Inclusion criteria: Patient's age 18-75 years, Daily tobacco users since last 1 year, able to converse in the Swedish language. **Exclusion criteria:** Patients with acute dental illness, severe psychiatric disease, alcohol problems, or use illicit drugs and are currently involved in other cessation programs.

Intervention and comparators: Brief advice based on 5A's principles (*n*=225) Versus usual care (*n*=242).

Primary outcomes: Reduction of tobacco consumption & changes in the expected direction for all outcomes were more frequent in the intervention arm.

Others: Strengths: The study used brief advice as per standard 5 A's approach. Selection of big sample size to make the findings generalizable to a similar population. **Limitations:** Lack of randomization for patients, use of computer randomized random sequence for only clinics used; lack of blindness and self-report data; failure to screen all eligible patients at some clinics.

Any other Notes: Sub-groups analysis to differentiate the impact of the intervention on snus and smoke users; Demonstration of counseling using interactive teaching techniques; Follow-ups visits after 6- months.

Reference 33: Cook JW, Collins LM, Fiore MC, Smith SS, Fraser D, Bolt DM, et al. Comparative effectiveness of motivation phase intervention components for use with smokers unwilling to quit: a factorial screening experiment. Addiction. 2016; 111(1):117–28.

Population and sample size: Setting: Southern Wisconsin, USA. Sample: Adult smokers. Sample size: 517. Age (Mean, SD): 47.0 ([SD = 14.4]). Design: Balanced four-factor randomized factorial design. Randomization: Stratified permuted, computer-generated block randomization (block size 16) based on gender and clinic.

Inclusion criteria: Adult aged ≥18 years; smoked ≥ 5 cigarettes/day for the previous 6months, adult not interested in quitting in the next 30 days but willing to cut down, able to read, write and speak the English language, agreed to complete assessment, planned to remains in the area for next 6 months, not currently using Bupropion and Varenicline, consented to use only study smoking medication during the study if reported current NRT use; nonmedical contraindications to Nicotine Replacement Therapy (NRT) use, women of potential childbearing agree to use birth control pills. **Exclusion criteria: N/A.**

Intervention and comparators: Motivational interviewing vs. none x Nicotine patch vs. none, x Nicotine gum vs. none x Behavioral reduction vs. no intervention (*n*=253) or usual care (*n*=264).

Primary outcomes: Smoking reduction was higher in nicotine gum combined with behavioral reduction counseling group and behavioral reduction counseling combined with motivational interviewing.

Others: Strengths: Use factorial design to test multiple interventions compared to usual care and stratified permuted random sampling. Follow-ups at 12- and 26-weeks following study enrollment.

Limitations: Self-reported response for outcomes measures and limited blinding for staff and participants.

Any other Notes: Use of phase base model of smoking intervention, the use of multiple treatment strategies using factorial design will help to test multiple hypotheses at one time.

Reference 34: Steinberg ML, Rosen RL, Versella M V, Borges A, Leyro TM. A Pilot Randomized Clinical Trial of Brief Interventions to Encourage Quit Attempts in Smokers From Socioeconomic Disadvantage. Nicotine Tob. Res. 2020; 22(9):1500–8.

Population and sample size: Setting: Local community soup kitchen, Northeastern US State. Sample: Daily smokers. Sample size: 64. Age (Mean, SD): (M_{age} = 47.4 years [SD = 10.7]). Design: Pilot Randomized Clinical Trial. Randomization: Block randomization.

Table 2. Characteristics of included studies in the review. (Cont.)

Inclusion criteria: Patient's age 19-65 years, daily tobacco users, able to read and speak the English language, and Carbon Monoxide (CO) reading greater than 5 ppm. **Exclusion criteria:** Patients on U.S FDA approved smoking cessation aids, patients with severe psychiatric disease, alcohol problems, illicit drug use, and are currently involved in other cessation programs, patients on antipsychotics medications, self-reported current medical problems potential concern to nicotine replacement, pending legal issues with the potential to result in incarceration and women should be on effective birth control and could not be nursing or pregnant or planning to become pregnant in the next 2 months.

Intervention and comparators: Brief (e.g., 30 m) Motivational Interviewing (19), Nicotine Replacement Therapy (NRT) (*n*=19), or a Referral-Only intervention (*n*=20).

Primary outcomes: 40% of the sample reported making a serious quit attempt at follow-up, significant self-reported reduction in smoking and more use of NRT and lozenge in NRT group at 6 months' follow-up.

Others: Strengths: Unique population (socio-economically disadvantaged smokers), follow-up (30 days) the cases to measure self-reported quit rate/attempt and comparison of three interventions simultaneously in one design. **Limitation:** Study included a small sample size (*n*=57).

Any other Notes: Follow-up at 1 month, unique population; socio-economically disadvantaged smokers, use of Post hoc analysis to find financial strain as a significant moderator of the effect of the intervention on smoking behavior

Reference 35: Ho KY, Li WHC, Wang MP, Lam KKW, Lam TH, Chan SSC. Comparison of two approaches in achieving smoking abstinence among patients in an outpatient clinic: A Phase 2 randomized controlled trial. Patient Educ. Couns. 2018; 101(5):885–93.

Population and sample size: Setting: Hong Kong –outpatient clinic. Sample: Chinese smokers- medical follow-up. Sample size: 100. Age (Mean, SD): (M_{age} = 55.6 years [SD = NA]). Design: A Phase 2 RCT. Randomization: Computer generated

Inclusion criteria: 18- years or older and smoked at least five cigarettes per day **Exclusion criteria:** Unstable medical conditions, poor cognitive function, mental illness, currently participating in other smoking cessation programs or services.

Intervention and comparators: (Quit immediately: [QI]- received a booklet about smoking cessation and brief intervention using the AWARD [ask, Warn, Advice, Refer, Do-It Again) model, and cut down to quit: [CDTQ]), to quit progressively.

Primary outcomes: QI group had a significantly higher self-reported quit rate than those in the CDTQ group at the 6-monthfollow-up (18.0% vs. 4.0%, adjusted OR = 0.190, 95% CI = 0.039–0.929). Not significant at the 12-month follow-up (12.0% vs. 4.0%, adjusted OR = 0.306, 95% CI = 0.059–1.594).

Others: Strengths: 4 follow-ups (1,3,6,12 months) to measures outcomes, use of allocation concealment to blind randomization and intention-to-treat analysis to control bias in the analysis. **Limitations:** A pilot approach to select all subjects from the same setting may infuse participant selection bias and only 6 and 12 months follow up with 73 % retention rate.

Any other Notes: 50 years and over half had received education at the lower secondary school level or below CDTQ methods are relatively more complicated than QI methods, which require an understanding of smoking education strategies and close monitoring of the number of cigarettes consumed and reduced.

Reference 36: Cabriales JA, Suro Maldonado B, Cooper T V. Smoking transitions in a sample of Hispanic daily light and intermittent smokers. Addict Behav. 2016; 62:42–6.

Population and sample size: Setting: Health clinic, hospital, or university on the U.S/México border. Sample: Hispanic (DLS/ITS) daily light (DLS;<=10 cigarettes per day) and intermittent (ITS; nondaily) smokers. Sample size: 190, a subset of 390 follow-up samples. Age (Mean, SD): (M_{age} = 38.6 years [SD =15.1]) Design: Randomized controlled trial. Randomization: Randomly assigned to either an immediate or delayed intervention group at baseline using an online random number generator

Inclusion criteria: Age of at least 18 years and smoking between one cigarette a month to 10 cigarettes per day (CPD). **Exclusion criteria: N/A**

Table 2. Characteristics of included studies in the review. (Cont.)

Intervention and comparators: Immediate brief cessation intervention versus delayed intervention (control) group.

Primary outcomes: Smoking categories to control group (DLS/ITS) remains stable, with no significant group difference. DLS group at both points showed higher nicotine dependence levels.8.95% went from daily light smokers (DLS) to quitting, and 5.26% went from intermittent smokers to quitting at 3-month follow-up.

Others: Strengths: Specific population; Hispanic, an underrepresented population in smoking cessation studies, use of multi-component intervention in one study. The first study to discuss light and intermittent smoking to compare efficacy of brief smoking cessation intervention. 3- month follow-up to measure to measures outcomes in both groups. **Limitations**: High attrition rate (48%); "contact-information mobility" - challenges to maintain communication with participants; participant work schedules; prioritization of "personal and family safety" over health-related behaviors; "the study was brief and perhaps not intensive enough to cause cessation." The self-report method at baseline and follow-up for smoking status rather than biochemical process.

Any other Notes: All-Hispanic, predominantly Mexican/Mexican American community sample potentially limits generalizability.

Reference 37: Krigel SW, Grobe JE, Goggin K, Harris KJ, Moreno JL, Catley D. Motivational interviewing and the decisional balance procedure for cessation induction in smokers not intending to quit. Addict Behav. 2017; 64:171–8.

Population and sample size: Setting: Urban University using the psychology department research pool, USA. Sample: University students. Sample size: 82 Age (Mean, SD): (M_{age} = 26.9 years [SD =9.6]) Design: Not Specified [Random assignment of the subjects in two groups]. Randomization: Computer-generated random number assignment in a sealed envelope.

Inclusion criteria: Smoking at least one cigarette during the last 7 days, having no intentions to quit in the next 30 days, age at least 18, college enrollment, and reachability via phone & email. **Exclusion criteria:** N/A.

Intervention and comparators: Motivational Interviewing using only the decisional balance component (MIDB)/ health education around smoking cessation (HE).

Primary outcomes: Both groups showed significant reductions in smoking rates and increases in motivation to quit, quit attempts, and self-reported abstinence, with no significant group differences.

Others: Strengths: Cost & time efficient interventions, use of intention-to-treat analysis and maximum-likelihood estimation to accommodate missing data. **Limitations:** Population of interest is a small/limited group; "college students who were generally light smokers". The use of a small sample size may hinder generalizability. Outcomes measures were self-reported without control group with no biochemical verification of abstinence.

Any other Notes: Recruitment materials made no mention of quitting smoking, and participants were informed they would receive up to $20 for study completion. Only one session of MIDB or HE was performed per participant. Each session was, on average <20 minutes.

Reference 38: Meyer C, Ulbricht S, Gross B, Kästel L, Wittrien S, Klein G, et al. Adoption, reach and effectiveness of computer-based, practitioner delivered and combined smoking interventions in general medical practices: a three-arm cluster randomized trial. Drug Alcohol Depend. 2012; 121(1–2):124–32.

Population and sample size: Setting: Northern Eastern, Germany. Sample: Adult smoker patients. Sample size: 263. Age (Mean, SD): 41.17 years [SD = 15.2]). Design: Three-arm clustered randomized controlled design. Randomization: Cluster randomization of the medical practices (*n*=151).

Inclusion criteria: Patients aged more than 18 years or older reported any tobacco smoking use in the last 6 months. **Exclusion criteria:** Practices registered for another facility apart from general practice.
Intervention and comparators: Brief advice (practice *n*=50; patients *n*=618)/Tailored letter (practice *n*=50; patients *n*=1484) / Combination (practice *n*=51; patients *n*=1113).

Table 2. Characteristics of included studies in the review. (Cont.)

Primary outcomes: The seven-day point prevalence was higher in the combination group compared to brief advice or tailored intervention. The rate of 6- month prolonged was higher in the combination group than the brief advice and tailored letters group. 7-days and 6-month prolonged abstinence were statistically significant between the combination group and the other two groups. Tailored letters group shows significantly higher abstinence within past 7-days at 12-month follow-up in contract to combination and brief advice. The number of abstinent patients was significantly higher in a tailored letter or combination group followed by brief advice.

Others: Strengths: Recruiting a large sample size for a three-arm clustered randomized design. Use of advanced imputations to find best results for 'missing at random' cases. **Limitations:** Self-reported abstinence and lost to follow-up of one-quarter of patients at 12-months.

Any other Notes: 12 months' follow-ups for all registered patients. Comparison of three interventions in different arms at a time to determine the efficacy of three different interventions.

Reference 39: Schane RE, Prochaska JJ, Glantz SA. Counseling nondaily smokers about secondhand smoke as a cessation message: a pilot randomized trial. Nicotine Tob. Res. 2013; 15(2):334–42.

Population and sample size: Setting: San Francisco Bay Area, U.S. Sample: Nondaily smokers. Sample size: 52 Age (Mean, SD): 32.66 years [SD = 11.11]). Design: A randomized pilot trial. Randomization: Random sequence created by SAG using the random number generator in Minitab 14.

Inclusion criteria: Respondents smoked at least 100 cigarettes in their lifetime, smoked at least once in the past seven days but not every day, age 18 years or older and speak the English language. **Exclusion criteria:** Participants had an exhaled carbon monoxide (CO) exceeding 10ppm.

Intervention and comparators: Brief counseling on Harm to Self-group (HTS, *n* =26) provided information on tobacco use and its risk on developing different medical conditions along with chemical ingredients of tobacco by a nurse/Harm to Others (HTO, *n* =26) informed about tobacco use and its risk on friends and family members similar to the HTS group.

Primary outcomes: A significant difference in abstinence between harm to others (HTO) (36.8%) and harm to self (HTS) (9.5%) groups. A significant change in contemplation ladder score between participants who completed follow-ups than who lost to follow-up. Trying to reduce or quit smoking is higher in the HTO group (not significant, p=0.607). Comparable smoking reduction at 3 months follows in both groups. No difference in intervention acceptability in both the groups. Improved motivation and self-efficacy from baseline to 3-month follow-up in both groups.

Others: Strengths: Bio confirmed tobacco abstinence at the 3- month follow-up. **Limitations:** The sample size was small for testing efficacy and limited to self-reported smoking cessation at 3-month follow-up.

Any other Notes: 3-month follow-up for smoking cessation. Bio confirmed tobacco abstinence at the 3 months and use of urinary cotinine test to cross-check the abstinence.

Reference 40: Leavens ELS, Meier E, Tackett AP, Miller MB, Tahirkheli NN, Brett EI, et al. The impact of a brief cessation induction intervention for waterpipe tobacco smoking: A pilot randomized clinical trial. Addict Behav. 2018; 78:94–100.

Population and sample size: Setting: Water pipe (WP) lounges in urban and suburban areas in the Midwest U.S. Sample: Water pipe smokers. Sample size: 109. Age (Mean, SD): 21.1 [SD = 5.08]). Design: Pilot randomized control trial. Randomization: Cluster randomization (block of 4).

Inclusion criteria: Participant age ≥18 years**. Exclusion criteria:** N/A.

Intervention and comparators: Brief motivational interview (*n*=53) /No intervention (*n*=55).

Primary outcomes: No Significant difference in WP (number of days WP used and number of WP used). Increase awareness on risk perceptions, commitment to quit, and confidence to quit WP smoking.

Others: Strengths: Cluster randomization to avoid bias in sample selection. Carbon monoxide exposure detection by eCO (exhaled carbon monoxide) detector. Multiple outcome measurement. **Limitations**: No eCO detection at 3 months' follow-up.

Table 2. Characteristics of included studies in the review. (Cont.)

Any other Notes: Use of eCO detector at baseline, immediately before entering to lounge and post-session gave more reliable findings. Follow-up survey at 3 months of post-session.

Reference 41: Cabriales JA, Cooper T V., Salgado-Garcia F, Naylor N, Gonzalez E. A randomized trial of a brief smoking cessation intervention in a light and intermittent Hispanic sample. Exp. Clin. Psychopharmacol. 2012; 20(5):410–9.

Population and sample size: Setting: StopLite smoking cessation intervention at a family health clinical (primarily) or university on the U.S. Mexico border. Sample: Hispanic smokers. Sample size: 214. Age (Mean, SD): 38.62 years [SD = 15.08]). Design: Pretest–posttest randomized control-group design with replacement of control group with delayed intervention. Randomization: Online random number generator.

Inclusion criteria: Hispanic at least 18 years of age and smoking between one cigarette a month to 10 cigarettes per day. **Exclusion criteria:** Non-Hispanic

Intervention and comparators: Carbon Monoxide (CO) feedback, ME, trigger management, and HE (Immediate versus delayed intervention group).

Primary outcomes: No significant differences in abstinence rates between the immediate and delayed intervention conditions. Significant increases in motivation to quit in the immediate intervention compared to the delayed intervention group.

Others: Strengths: 3-month follow-up by telephone, mail, or in person. Participants in a delayed intervention (control group) received the brief intervention after the end of the study. **Limitations:** Self-reported nicotine status as outcome measures and limited to the Hispanic population only.

Any other Notes: The brief intervention included self-efficacy, motivational enhancement, trigger management, and health education components. Non-eligible participants were offered QuitLine & Quintet resources.

References

1. World Health Organization. WHO Global Report: Mortality Attributable to Tobacco [Internet]. Who Global Report. Geneva: WHO; 2012 [cited 2021 Jun 29]. p. 392. Available from: http://www.who.int/tobacco/publications/surveillance/fact_sheet_mortality_report.pdf
2. WHO. Who Report on the Global Tobacco Epidemic, 2013 [Internet]. Vol. 23, ASHE-ERIC Higher Education Report. Geneva: WHO; 1994. p. iii–vii. Available from: http://www.who.int/tobacco/global_report/2013/en/index.html%5Cnhttp://doi.wiley.com/10.1002/aehe.3640230702
3. World Health Organization (WHO). WHO global report on trends in prevalence of tobacco use 2000-2025 [Internet]. Third. WHO, editor. World Health Organization. Geneva: WHO: World Health Organization; 2019. Available from: https://www.who.int/publications/i/item/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition
4. GBD 2015 Tobacco Collaborators. Smoking prevalence and attributable disease burden in 195 countries and territories, 1990-2015: a systematic analysis from the Global Burden of Disease Study 2015. Lancet (London, England). 2017; 389(10082):1885–906.
5. Parsons VL, Moriarity C, Jonas K, Moore TF, Davis KE, Tompkins L. Design and estimation for the national health interview survey, 2006-2015. Vital Health Stat 2. 2014; (165):1–53.
6. Haokip HR, Kumar DR, Singh Rawat DV, Kumar Sharma DS. Efficacy of standard nicotine replacement therapy (NRT) versus video-assisted nurse-led NRT on tobacco cessation: A randomized controlled pilot trial. Clin. Epidemiol. Glob. Health. 2021; 9:141–6.

7. Fagerström K. The epidemiology of smoking: health consequences and benefits of cessation. Drugs. 2002; 62 Suppl 2:1–9.
8. Organization WH. Tobacco Fact Sheet No.339. World Health Organization [Internet]. 2013 [cited 2021 May 14]. Available from: https://www.drugsandalcohol.ie/17528/
9. Hatsukami D, Jensen J, Allen S, Grillo M, Bliss R. Effects of behavioral and pharmacological treatment on smokeless tobacco users. J. Consult. Clin. Psychol. 1996; 64(1):153–61.
10. Giulietti F, Filipponi A, Rosettani G, Giordano P, Iacoacci C, Spannella F, et al. Pharmacological Approach to Smoking Cessation: An Updated Review for Daily Clinical Practice. High blood Press. Cardiovasc. Prev. 2020; 27(5):349–62.
11. Cornuz J, Willi C. Nonpharmacological smoking cessation interventions in clinical practice. Eur. Respir. Rev. 2008; 17(110):187-91.
12. Niaura R. Nonpharmacologic therapy for smoking cessation: characteristics and efficacy of current approaches. Am. J. Med. 2008; 121(4 Suppl 1):S11-9.
13. Laland KN R. Social Learning: Theory. In: Choe JC Editors. Encyclopedia of Animal Behavior [Internet]. 2nd Ed. 2010 [cited 31 May 2022]. p. 380–6 p. Available from: https://doi.org/10.1016/B978-0-12-813251-7.00057-2
14. Cornuz J, Gilbert A, Pinget C, McDonald P, Slama K, Salto E, et al. Cost-effectiveness of pharmacotherapies for nicotine dependence in primary care settings: a multinational comparison. Tob. Control. 2006; 15(3):152–9.
15. Catley D, Goggin K, Harris KJ, Richter KP, Williams K, Patten C, et al. A randomized trial of motivational interviewing: Cessation induction among smokers with low desire to quit. Am. J. Prev. Med. 2016; 50(5):573–83.
16. Miller WR RS. Motivational Interviewing: Helping People Change. 3rd ed. New York, NY, US: Guilford Press; 2013.
17. Lancaster T, Stead LF. Individual behavioural counselling for smoking cessation. Cochrane Database Syst. Rev. 2017; 3(3):CD001292.
18. Hettema JE, Hendricks PS. Motivational interviewing for smoking cessation: a meta-analytic review. J. Consult. Clin. Psychol. 2010; 78(6):868–84.
19. Rice VH, Heath L, Livingstone-Banks J, Hartmann-Boyce J. Nursing interventions for smoking cessation. Cochrane Database Syst. Rev. 2017; 12(12):CD001188.
20. World Health Organization (WHO). The ASSIST-linked brief intervention for hazardous and harmful substance use. Manual for use in primary care [Internet]. 2012 [cited 2021 Jul 2]. Available from: https://www.who.int/publications/i/item/the-assist-linked-brief-intervention-for-hazardous-and-harmful-substance-use
21. Heather N ST. The essential and book of treatment and prevention of alcohol patients. London: John Wiley & Sons Ltd.; 2004.
22. Huffstetler AN. Brief Interventions and Motivational Interviewing [Internet]. 2021 [cited 2022 May 31]. Available from: https://www.dynamed.com/evaluation/brief-interventions-and-motivational-interviewing/about
23. Tucker JS, D'Amico EJ, Ewing BA, Miles JN V, Pedersen ER. A group-based motivational interviewing brief intervention to reduce substance use and sexual risk behavior among homeless young adults. J. Subst. Abuse Treat. 2017; 76:20–7.
24. Center for Substance Abuse Treatment. Brief Interventions and Brief Therapies for Substance Abuse. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 1999. Report No. 99–3353.
25. Lai DT, Cahill K, Qin Y, Tang JL. Motivational interviewing for smoking cessation. Cochrane Database Syst. Rev. 2010; (1):CD006936.
26. Colby SM, Nargiso J, Tevyaw TO, Barnett NP, Metrik J, Lewander W, et al. Enhanced motivational interviewing versus brief advice for adolescent smoking cessation: results from a randomized clinical trial. Addict. Behav. 2012; 37(7):817–23.
27. Cabezas C, Advani M, Puente D, Rodriguez-Blanco T, Martin C. Effectiveness of a stepped primary care smoking cessation intervention: Cluster randomized clinical trial (ISTAPS study). Addiction. 2011; 106(9):1696–706.
28. Lindqvist H, Forsberg LG, Forsberg L, Rosendahl I, Enebrink P, Helgason AR. Motivational interviewing in an ordinary clinical setting: a controlled clinical trial at the Swedish National Tobacco Quitline. Addict. Behav. 2013; 38(7):2321–4.

29. Eriksen MB, Frandsen TF. The impact of patient, intervention, comparison, outcome (PICO) as a search strategy tool on literature search quality: a systematic review. J. Med. Libr. Assoc. 2018; 106(4):420–31.
30. Mujika A, Forbes A, Canga N, de Irala J, Serrano I, Gascó P, et al. Motivational interviewing as a smoking cessation strategy with nurses: an exploratory randomised controlled trial. Int. J. Nurs. Stud. 2014; 51(8):1074–82.
31. The Cochrane Collaboration. Cochrane Risk of Bias Tools for Randomized Trials [Internet]. 2011 [cited 2022 May 25]. Available from: https://methods.cochrane.org/bias/resources/ cochrane-risk-bias-tool
32. Virtanen SE, Zeebari Z, Rohyo I, Galanti MR. Evaluation of a brief counseling for tobacco cessation in dental clinics among Swedish smokers and snus users. A cluster randomized controlled trial (the FRITT study). Prev. Med. (Baltim). 2015; 70:26–32.
33. Cook JW, Collins LM, Fiore MC, Smith SS, Fraser D, Bolt DM, et al. Comparative effectiveness of motivation phase intervention components for use with smokers unwilling to quit: a factorial screening experiment. Addiction. 2016; 111(1):117–28.
34. Steinberg ML, Rosen RL, Versella M V, Borges A, Leyro TM. A Pilot Randomized Clinical Trial of Brief Interventions to Encourage Quit Attempts in Smokers from Socioeconomic Disadvantage. Nicotine Tob. Res. 2020; 22(9):1500–8.
35. Ho KY, Li WHC, Wang MP, Lam KKW, Lam TH, Chan SSC. Comparison of two approaches in achieving smoking abstinence among patients in an outpatient clinic: A Phase 2 randomized controlled trial. Patient Educ. Couns. 2018; 101(5):885–93.
36. Cabriales JA, Suro Maldonado B, Cooper T V. Smoking transitions in a sample of Hispanic daily light and intermittent smokers. Addict. Behav. 2016; 62:42–6.
37. Krigel SW, Grobe JE, Goggin K, Harris KJ, Moreno JL, Catley D. Motivational interviewing and the decisional balance procedure for cessation induction in smokers not intending to quit. Addict Behav. 2017; 64:171–8.
38. Meyer C, Ulbricht S, Gross B, Kästel L, Wittrien S, Klein G, et al. Adoption, reach and effectiveness of computer-based, practitioner delivered and combined smoking interventions in general medical practices: a three-arm cluster randomized trial. Drug Alcohol Depend. 2012; 121(1–2):124–32.
39. Schane RE, Prochaska JJ, Glantz SA. Counseling nondaily smokers about secondhand smoke as a cessation message: a pilot randomized trial. Nicotine Tob. Res. 2013; 15(2):334–42.
40. Leavens ELS, Meier E, Tackett AP, Miller MB, Tahirkheli NN, Brett EI, et al. The impact of a brief cessation induction intervention for waterpipe tobacco smoking: A pilot randomized clinical trial. Addict Behav. 2018; 78:94–100.
41. Cabriales JA, Cooper T V., Salgado-Garcia F, Naylor N, Gonzalez E. A randomized trial of a brief smoking cessation intervention in a light and intermittent Hispanic sample. Exp. Clin. Psychopharmacol. 2012; 20(5):410–9.
42. Sayegh CS, Huey SJ, Zara EJ, Jhaveri K. Follow-up treatment effects of contingency management and motivational interviewing on substance use: A meta-analysis. Psychol. Addict. Behav. 2017; 31(4):403–14.
43. Lindson-Hawley N, Thompson TP, Begh R. Motivational interviewing for smoking cessation. Cochrane Database Syst. Rev. 2015; (3):CD006936.
44. O'Halloran PD, Blackstock F, Shields N, Holland A, Iles R, Kingsley M, et al. Motivational interviewing to increase physical activity in people with chronic health conditions: a systematic review and meta-analysis. Clin. Rehabil. 2014; 28(12):1159–71.
45. Frost H, Campbell P, Maxwell M, O'Carroll RE, Dombrowski SU, Williams B, et al. Effectiveness of Motivational Interviewing on adult behaviour change in health and social care settings: A systematic review of reviews. PLoS One. 2018; 13(10):e0204890.
46. Binning J, Woodburn J, Bus SA, Barn R. Motivational interviewing to improve adherence behaviours for the prevention of diabetic foot ulceration. Diabetes Metab. Res. Rev. 2019; 35(2):e3105.
47. Palacio A, Garay D, Langer B, Taylor J, Wood BA, Tamariz L. Motivational Interviewing Improves Medication Adherence: a Systematic Review and Meta-analysis. J Gen Intern Med. 2016 Aug;31(8):929–40.
48. Wu L, Gao X, Lo ECM, Ho SMY, McGrath C, Wong MCM. Motivational Interviewing to Promote Oral Health in Adolescents. J Adolesc Heal Off Publ Soc Adolesc Med. 2017; 61(3):378–84.
49. Alperstein D, Sharpe L. The efficacy of motivational interviewing in adults with chronic pain: A meta-analysis and systematic review. J. Pain. 2016; 17(4):393–403.

50. Madson MB, Loignon AC, Lane C. Training in motivational interviewing: a systematic review. J. Subst. Abuse Treat. 2009; 36(1):101–9.

51. Davis MF, Shapiro D, Windsor R, Whalen P, Rhode R, Miller HS, et al. Motivational interviewing versus prescriptive advice for smokers who are not ready to quit. Patient Educ. Couns. 2011; 83(1):129–33.

52. Heckman CJ, Egleston BL, Hofmann MT. Efficacy of motivational interviewing for smoking cessation: a systematic review and meta-analysis. Tob. Control. 2010; 19(5):410–6.

53. Apodaca TR, Longabaugh R. Mechanisms of change in motivational interviewing: A review and preliminary evaluation of the evidence. Addiction. 2009; 104(5):705–15.

54. McCambridge J, Cunningham JA. The early history of ideas on brief interventions for alcohol. Addiction. 2014; 109(4):538–46.

55. World Health Organization. Screening and brief interventions for substance use problems [Internet]. 2012 [cited 2022 May 25]. Available from: https://www.who.int/activities/screening-and-brief-interventions-for-substance-use-problems

56. Collins SE, Witkiewitz K, Kirouac M, Marlatt GA. Preventing Relapse Following Smoking Cessation. Curr. Cardiovasc. Risk Rep. 2010; 4(6):421–8.

57. Center for Substance Abuse Treatment. Brief Interventions and Brief Therapies for Substance Abuse. Rockville (MD). Substance Abuse and Mental Health Services Administration (US); 1999. (Treatment Improvement Protocol (TIP) Series, No. 34.) Chapter 2—Brief [Internet]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK64942/

58. Kristenson H, Ohlin H, Hultén-Nosslin MB, Trell E, Hood B. Identification and intervention of heavy drinking in middle-aged men: results and follow-up of 24-60 months of long-term study with randomized controls. Alcohol Clin. Exp. Res. 1983 ;7(2):203–9.

59. Chick J, Lloyd G, Crombie E. Counselling problem drinkers in medical wards: a controlled study. BMJ. 1985; 290(6473):965–7.

60. Babor T, Higgins-Biddle JC. Brief intervention for hazardous and harmful drinking: A manual for use in primary care [Internet]. Geneva: World Health Organization. 2001 [cited 2021 Aug 21]. Available from: https://apps.who.int/iris/handle/10665/67210

61. Sarkar S, Pakhre A, Murthy P, Bhuyan D. Brief Interventions for Substance Use Disorders. Indian J. Psychiatry. 2020; 62(Suppl 2):S290–8.

62. World Health Organization (WHO). The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): manual for use in primary care [Internet]. Geneva: WHO; 2010 [cited 2021 Aug 21]. Available from: https://apps.who.int/iris/handle/10665/44320

63. Prochaska JO, DiClemente CC. Self change processes, self efficacy and decisional balance across five stages of smoking cessation. Prog. Clin. Biol. Res. 1984; 156:131–40.

64. Royal Australian College of General Practitioners. Smoking, nutrition, alcohol, physical activity (SNAP): a population health guide to behavioural risk factors in general practice [Internet]. 2nd ed. Melbourne; 2015 [cited 2022 May 25]. Available from: https://www.racgp.org.au/your- practice/guidelines/snap

65. Haber P, Lintzeris N, Proude E LO. Guidelines for the treatment of alcohol problems [Internet]. Canberra; 2009 [cited 2022 May 25]. Available from: http://www.alcohol.gov.au/internet/ alcohol/publishing.nsf/Content/guidelines-treat-alc-09

66. Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel and Staff. A clinical practice guideline for treating tobacco use and dependence: 2008 update. A U.S. Public Health Service report. Am. J. Prev. Med. 2008; 35(2):158–76.

67. Carr AB, Ebbert JO. Interventions for tobacco cessation in the dental setting. A systematic review. Community Dent. Health. 2007; 24(2):70–4.

68. Maryland: Tobacco Control Resource Center. Brief Interventions [Internet]. [cited 2021 Aug 21]. Available from: https://marylandtcrc.org/cessation-programs/brief-interventions

69. Stead LF, Bergson G, Lancaster T. Physician advice for smoking cessation. Cochrane database Syst. Rev. 2008 Apr;(2):CD000165.

70. Rodgers C. Brief interventions for alcohol and other drug use. Aust. Prescr. 2018; 41(4):117–21.

71. Rohsenow DJ, Martin RA, Monti PM, Colby SM, Day AM, Abrams DB, et al. Motivational Interviewing versus Brief Advice for Cigarette Smokers in Residential Alcohol Treatment. J. Subst. Abuse Treat. 2014; 46(3):346.
72. Lindson N, Thompson TP, Ferrey A, Lambert JD, Aveyard P, Group CTA. Motivational interviewing for smoking cessation. Cochrane Database Syst. Rev. 2019; 7(7): CD006936.
73. Matkin W, Ordóñez-Mena JM, Hartmann-Boyce J, Group CTA. Telephone counselling for smoking cessation. Cochrane Database Syst. Rev. 2019; 5(5):CD002850.
74. Chen D, Wu LT. Smoking cessation interventions for adults aged 50 or older: A systematic review and meta-analysis. Drug Alcohol Depend. 2015; 154:14–24.
75. Manolios E, Sibeoni J, Teixeira M, Révah-Levy A, Verneuil L, Jovic L. When primary care providers and smokers meet: a systematic review and metasynthesis. Prim. Care Respir. Med. 2021; 31(1):1–8.
76. International Council of Nurses. Tobacco use and health ICN Position [Internet]. International Council of Nurses; 2012 [cited 2022 May 26]. Available from: https://www.icn.ch/sites/default/files/inline-files/A18_Tobacco_Use_Health.pdf

Original article

Nursing Services in the First Level of Care in Colombia. Analysis of the Offer 2002-2020

Genny Paola Fuentes Bermudez[1]
https://orcid.org/0000-0003-3994-9822
Oneys del Carmen De Arco Canoles[2]
https://orcid.org/0000-0003-2915-3441

UNIVERSIDAD
DE ANTIOQUIA
1 8 0 3

Nursing Services in the First Level of Care in Colombia. Analysis of the Offer 2002-2020

Abstract

Objective. This work sought to characterize the primary care nursing consultation services reported in the official systems of health services records in Colombia between 2002 and 2020. **Methods.** This was a cross-sectiona, retrospective study. Node geographic analysis and descriptive statistics were performed for quantitative data from the Special Registry of Health Providers and the Ministry of Health and Social Protection. **Results.** The study identified 6079 nursing services of which 72% are outpatient, 95.05% are assigned to institutions providing health services, 99.75% are of low complexity, and 48.22% of the offer was created in the last five years. The nodes with the highest increase in the offer of services are Caribbean (*n* = 909) and Pacific (*n* = 499), while Amazon (*n* = 48) showed the lowest offer in the last five years. **Conclusions.** Disparity is evident in the

[1] Nurse, Master's, PhD (c). Professor, Universidad Nacional de Colombia. Email: gfuentesb@unal.edu.co Corresponding author

[2] Nurse, Master's, Professor, Universidad Nacional de Colombia. Email: ocdec@unal.edu.co

Conflicts of interest: None

Received: 23 June 2021.

Approved: October 3, 2022.

How to cite this article: Fuentes GP, De Arco O. Nursing Services in the First Level of Care in Colombia. Analysis of the Offer 2002-2020. Invest. Educ. Enferm. 2022; 40(3):e04.

DOI: https://doi.org/10.17533/udea.iee.v40n3e04.

availability of services by region and node, in addition to a low liberal exercise to provide nursing care.

Descriptors: nursing services; primary health care; health services accessibility; law of supply and demand, nursing administration research; primary care nursing.

Servicios de enfermería en el primer nivel de atención en Colombia. Un análisis de la oferta 2002-2020

Resumen

Objetivo. Caracterizar los servicios de consulta de enfermería de primer nivel de atención reportados en los sistemas oficiales de registros de servicios de salud en Colombia durante el periodo 2002-2020. **Métodos.** Estudio transversal de corte retrospectivo. Se realizó análisis geográfico por nodos y estadística descriptiva para los datos procedentes del Registro Especial de Prestadores en Salud (REPS) del Ministerio de Salud y Protección Social. **Resultados.** Se identificaron 6079 servicios de enfermería de los cuales el 72% son ambulatorios, el 95.05% están adscritos a instituciones prestadoras de servicios de salud, un 99.75% son de complejidad baja y, el 48.22% de la oferta se creó en los últimos 5 años. Los nodos que han mostrado mayor aumento en la oferta de servicios son Caribe (*n*=909) y Pacífico (*n*=499), mientras que Amazonia (*n*=48) ha mostrado la menor oferta en los últimos cinco años. **Conclusión.** Existe disparidad en la disponibilidad de servicios por región y nodo, además de un bajo ejercicio independiente para la provisión de atención en enfermería.

Descriptores: servicios de enfermería; atención primaria de salud; accesibilidad a los servicios de salud; ley de la oferta y la demanda; investigación en administración de enfermería; enfermería de atención primaria.

Serviços de enfermagem no primeiro nível de atenção na Colômbia. Uma análise da oferta 2002-2020

Resumo

Objetivo. Caracterizar os serviços de consulta de enfermagem de primeiro nível de atenção informados nos sistemas oficiais de registro dos serviços de saúde na Colômbia durante o período 2002-2020. **Métodos.** Estudo transversal, retrospectivo. Foi realizada análise geográfica por nós e estatística descritiva para os dados do Cadastro Especial de Provedores de Saúde (REPS) do Ministério da Saúde e Proteção Social. **Resultados.** Foram identificados 6079 serviços de enfermagem, sendo 72% ambulatorial, 95.05% vinculados a instituições que prestam serviços de saúde, 99.75% são de baixa complexidade e 48.22% da oferta foi criada nos últimos 5 anos. Os nós que apresentaram maior aumento na oferta de serviços são Caribe (*n* = 909) e Pacífico (*n* = 499), enquanto a Amazônia (*n* = 48) apresentou a menor oferta nos últimos cinco anos. **Conclusão.** Há disparidade na disponibilidade de serviços por região e nó, além de um baixo exercício independente para a prestação de cuidados de enfermagem

Descritores: serviços de enfermagem, atenção primária à saúde, acesso aos serviços de saúde, lei da oferta e da procura, pesquisa em administração de enfermagem, enfermagem de atenção primária.

Introduction

The aim of the primary health care approach is to maximize the level and distribution of health and wellbeing through the integrated articulation of services of the first level of care and public health, multi-sector construction of public policies and the call to action, and empowerment of people and communities.(1) Primary care has been recognized as the nuclear and central axis of health systems, as well as the social and economic development of communities. According to the Alma-Ata Declaration, it represents the first level of contact human beings have at individual and collective level with health systems, besides favoring access to health care in different scenarios in which the person develops.(2) In 2020, the operational framework for primary health care by the World Health Organization (WHO) ratified that in addition to its being the first contact, it is configured as a key process to provide accessible, continuous, comprehensive, and patient-centered care.(1)

Achieving universal coverage implies, in primary-care oriented health systems, availability of technologies that facilitate access to health services, efficiency in using health resources to facilitate financial sustainability, and availability of professionals able to respond to the needs of the population in any of the levels of care through the development of the staff's knowledge and skills, and the guarantee of dignified, decent, and safe working conditions.(3) Given the current approach on primary health care, proposed by the Astana Declaration and implemented within the operational framework developed by the WHO,(1) it becomes necessary to identify the resources and capacities of the national health systems within the primary care component. Participation by Nursing in these services contributes to improving the quality of life, greater adherence to treatment, higher level of knowledge, and higher rates of patient satisfaction. (4)

Nursing services encompass autonomous care and in collaboration dispensed to people of all ages, families, groups and communities, sick or not, and under all circumstances.(5) It comprises health promotion, disease prevention, and care dispensed to the sick, handicapped, and individuals with terminal illnesses.(5,6) Within the framework of the policy on comprehensive health care for Colombia, nursing activities in primary care, commonly defined as nursing consultations, have centered on vaccinations, evaluation of growth and physical, motor, cognitive and socio-emotional development, assessment of the nutritional status, assessment of sexual and reproductive health, and detection of alterations in all the phases of the vital cycle;(7) however, it is also possible to identify interventions around education and technical care, like administration of medications or management of complex wounds.(8) The country's regulations on the creation of health services has included the qualification of nursing services in outpatient modality, home care, and mobile units, with the special registry of health services providers being the official source to have access to information related with the availability of health services at the national level.(9)

Regulatory changes in the Colombian health system reaffirm the strategic role of the first level of care and the importance of the nursing consultation in these services, becoming necessary to characterize its development to determine consolidation strategies and establish actions that permit increasing its capacity and coverage. The use of national health data, collected by the Colombian Ministry of Health and Social Protection since 2002,(10) is an underused decision-making tool in the country, hence, its analysis will permit management based on data and with it, the transformation of information in health results that improve the quality of life of the population. Bearing in mind the aforementioned, the aim of the study was to characterize nursing services of the first level of care reported in official systems of health services records in Colombia between 2002 and 2020.

Methods

This was a descriptive, retrospective cross-sectional study of the offer of nursing services enabled in the Colombian territory. Data related with the offer, modality of care, complexity, provider and year of creation of the nursing services were taken from official sources, like the Special Registry of Health Providers (REPS, for the term in Spanish) by the Ministry of Health and Social Protection.(10) Information on the population per department to calculate the density of services was obtained from the 2018 National Population and Housing Census.(11)

Using the REPS, nursing services were characterized in Colombia by using five variables: a) number of services; b) modality of nursing care; c) type of practice (autonomous or linked to an organization); d) level of complexity classified as low, medium, and high; and e) evolution over time and growth of services.

Colombia has a vast geographic and population diversity; it is divided into 32 departments and one capital district (Bogotá D.C.). The geographic analysis used the proposal by León *et al*., which consists in grouping the 33 regions of the country into seven nodes(12) denominated: Amazon (Putumayo, Amazonas, Caquetá, Guaviare, Vaupés, and Guainía); Orinoquía (Meta, Vichada, Casanare, Arauca, and Cundinamarca); Northeast (Boyacá, Santander, Norte de Santander, and Cesar), Pacific (Nariño, Cauca, Valle del Cauca, and Chocó); Central (Antioquia, Caldas, Quindío, Risaralda, Tolima, and Huila); Caribbean (La Guajira, Magdalena, Atlántico, Bolívar, Sucre, Córdoba, San Andrés); and Bogotá (Bogotá D.C.) to standardize the presentation of results in regions (departments and capital district) with common sociodemographic characteristics.

Absolute and relative frequency measures were used for the variables care setting, level of complexity, temporary evolution and growth of services, and type of provider to characterize nursing services per region. Descriptive statistics analysis was used for density of the number of services per 100-thousand inhabitants, grouping the results into quartiles to categorize the availability of services per region. Measures of central tendency were used to present information on the five variables for each of the geographic nodes in Colombia.

Results

Number of nursing services

The study identified 6,076 nursing services. The Caribbean node groups the territories with greater number of nursing services (n = 1,673), followed by the Pacific node (n = 1212) and the Northeast node (n = 1064), while the Amazon node has the lowest number of services. The regions with the highest absolute registry of services are Valle del Cauca (n = 576), Bogotá (n = 98), and Santander (n = 411); 59.52% of the services in the country are concentrated in 10 regions, which are Valle del Cauca, Bogotá D.C, Santander, Bolívar, Cundinamarca, Atlántico, Nariño, Córdoba, Magdalena, and Boyacá; moreover, great disparity is observed in the offer of services among regions, for example: Valle del Cauca has 576 services unlike Vaupés and Guainía with five services each (Table 1).

Table 1. Absolute frequencies of the study variables: number of services, care setting, and type of provider. Colombia, 2002-2020

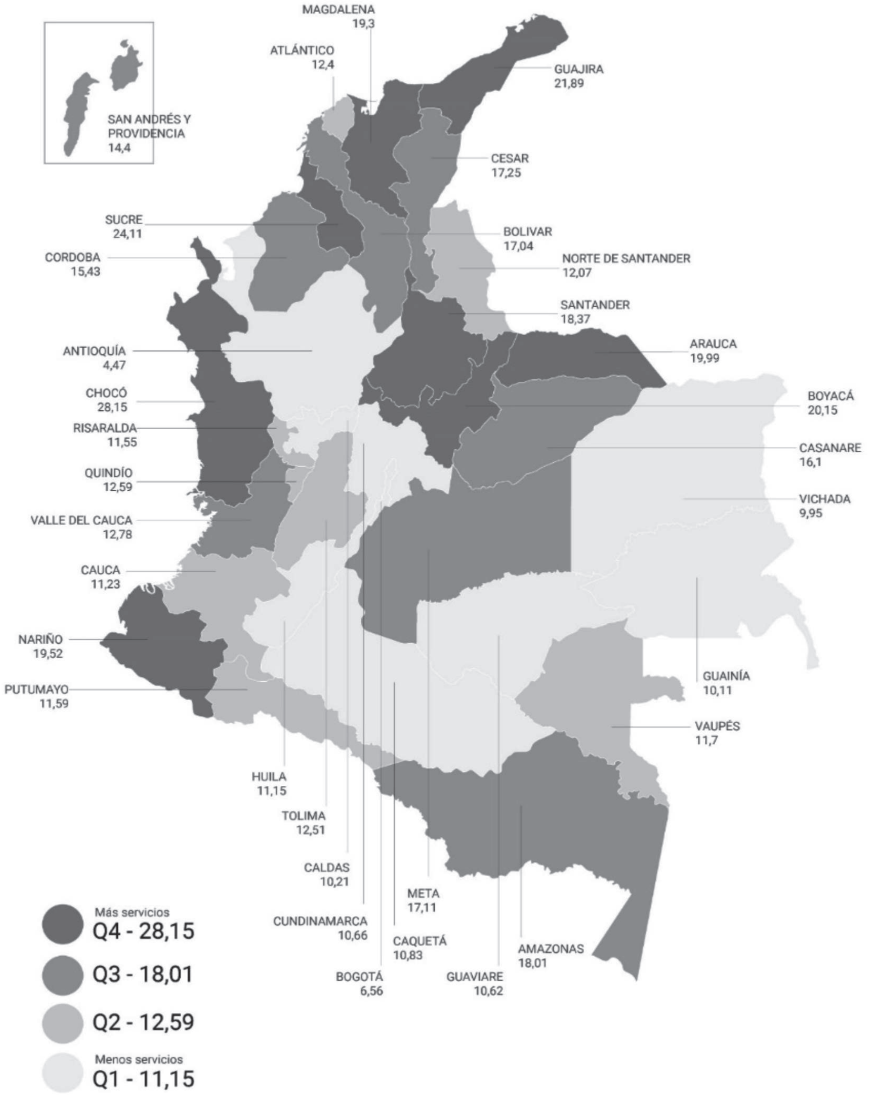
Node	Region	Services		Modality of care*			Type of practice	
		Number	Percentage	Home	Outpatient	Mobile unit	Institutional	Independent professional
Amazonia	**Caquetá**	44	0.72	12	42	9	44	0
	Putumayo	41	0.67	19	40	8	41	0
	Amazonas	14	0.23	1	14	1	14	0
	Guaviare	9	0.14	5	9	1	9	0
	Guainía	5	0.09	0	5	0	5	0
	Vaupés	5	0.09	0	5	3	5	0
	Node total	118	1.94%	37	118	22	118	0
Orinoquía	**Cundinamarca**	329	5.41	70	283	18	326	3
	Meta	180	2.96	59	145	8	172	8
	Casanare	69	1.14	36	58	5	69	0
	Arauca	56	0.92	34	37	3	56	0
	Vichada	11	0.18	1	10	2	11	0
	Node total	645	10.61%	200	533	36	634	11
Northeast	**Santander**	411	6.76	141	357	13	409	2
	Boyacá	248	4.09	45	235	19	241	7
	Cesar	216	3.55	51	175	16	216	0
	Norte de Santander	189	3.12	38	162	7	187	2
	Node total	1,064	17.52%	275	929	55	1,063	11
Central	**Antioquia**	293	4.8	87	251	9	278	15
	Tolima	167	2.74	57	133	21	165	2
	Huila	124	2.04	39	113	11	122	2
	Risaralda	110	1.82	22	101	12	110	0
	Caldas	103	1.7	19	99	8	103	0
	Quindío	69	1.15	18	65	5	67	2
	Node total	866	14.25%	242	762	66	845	21

Table 1. Absolute frequencies of the study variables: number of services, care setting, and type of provider. Colombia, 2002-2020 (Cont.)

Node	Region	Services		Modality of care*			Type of practice	
		Number	Percentage	Home	Outpatient	Mobile unit	Institutional	Independent professional
Caribbean	**Bolívar**	363	5.97	108	330	20	360	3
	Atlántico	327	5.38	81	293	10	327	0
	Córdoba	279	4.59	45	263	6	279	0
	Magdalena	268	4.42	81	242	25	268	0
	Sucre	224	3.68	58	211	17	223	1
	La Guajira	203	3.34	66	187	30	203	0
	San Andrés and Providencia	9	0.15	2	7	0	8	1
	Node total	1,673	27.53%	441	1533	108	1,776	5
Pacific	**Valle del Cauca**	576	9.47	105	534	26	574	2
	Nariño	318	5.23	118	283	38	314	4
	Cauca	166	2.74	32	156	7	165	1
	Chocó	152	2.51	40	123	83	152	0
	Node total	1,212	19.95%	295	1,391	154	1,205	7
Bogotá	**Bogotá D.C**	498	8.20%	147	394	7	460	38
National Total		6 076	100%	1 637	5 660	448	6 101	93

*A nursing service can be enabled in various modalities: home, outpatient, and mobile unit.

The national density mean is 14.53 services per 100-thousand inhabitants. The region with greatest density of services is Chocó (28.15 per 100-thousand), followed by Sucre (24.11 per 100-thousand), and La Guajira (21.89 per 100-thousand), while those with the lowest density are Antioquia and Bogotá DC (Map 1). The density per nodes observed is Pacific with 17.92, Caribbean with 17.79 services per 100-thousand inhabitants, Northeast with 16.96 services per 100-thousand inhabitants, Orinoquía with 14.76 services per 100-thousand inhabitants, Amazonia with 12.14 services per 100-thousand inhabitants, Central with 10.41 services per 100-thousand inhabitants, and Bogotá with 6.56 services per 100-thousand inhabitants.



Map 1. Density of nursing services per 100,000 inhabitants. Colombia 2002-2020

Nursing care modality

The nursing care modality corresponds to outpatient services (72%), home services (21%), and mobile unit (6%). In all, there are 7447 services because the same service can be enabled in several modalities. The nodes with highest offer of services in the three modalities are Caribbean (*n* = 1533 outpatient; *n* = 441 home; *n* = 108 mobile units) and Pacific (*n* = 1,096 outpatient; *n* = 295 home; *n* = 154 mobile units). The Amazon node has the lowest gross number of services in home modality (*n* = 37) and outpatient (*n* = 115), while the lowest number of services in mobile unit modality are found in the Bogotá node (*n* = 7).

The mean for home services is 49.60 per region and the offer is found mainly in the regions of Bogotá (*n* = 147), Santander (*n* = 41), Nariño (*n* = 118), Bolívar (*n* = 108), and Valle del Cauca (*n* = 105). The mean for outpatient services is 162.48 services per region and 45.45% of the regions is above the national mean, with Valle del Cauca (*n* = 534), Bogotá D.C (*n* = 394), and Santander (*n* = 357) having the highest number of services in this modality. The mean of nursing mobile units is 13.57 services per region, with Chocó quite above with 83 services, followed by Nariño with 38 services (Table 1).

Type of nursing practice

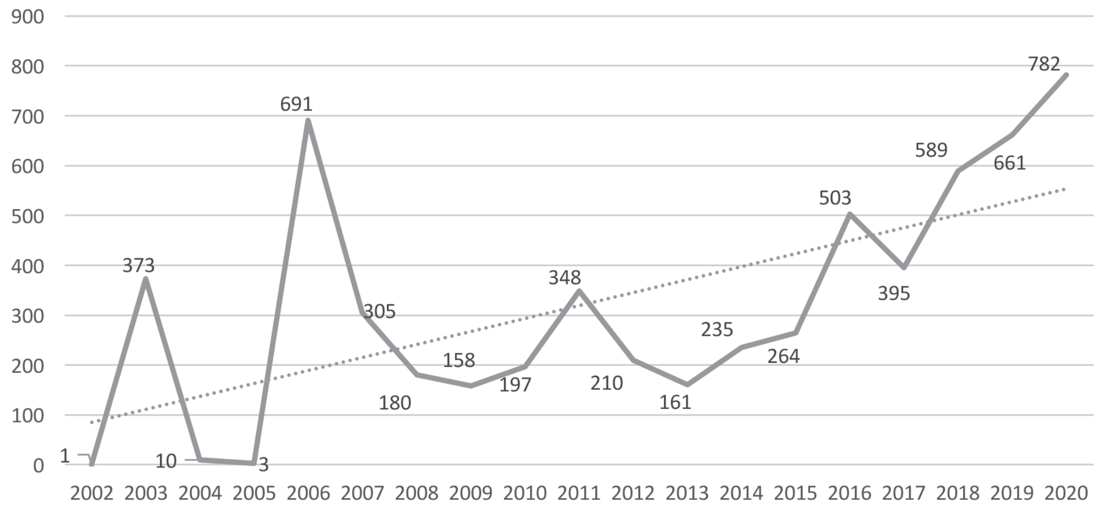
The provision of nursing services in primary care is linked to health institutions by 95.05% (*n* = 5775), of which 3624 are private organizations. Also noted is that 3.42% of the institutions have a social object different from providing health services (*n* = 208), principally educational institutions, centers for the elderly, and rehabilitation centers. Enabling nursing services as independent professionals is low with 1.53%, which corresponds to 93 nursing services (Table 1). The nursing practice linked to institutions has the highest absolute frequencies in the Caribbean node (*n* = 1668), followed by the Pacific node (*n* = 1205), while the autonomous practice is observed with greater frequency in the Bogotá node with 38 services. The Amazon node reports the lowest number of nursing services associated with organizational practice (*n* = 118) and autonomous practice (*n* = 0). In the regional analysis, Bogotá DC concentrates the highest number of nursing services linked to an organization (*n* = 460) and derived from an autonomous practice (*n* = 38). The lowest figures are shown in Guainía and Vaupés with five institutional nursing services and none for independent practice (Table 1).

Complexity of care

The study identified 6064 low-complexity nursing services (99.81%), 11 of medium complexity, and one of high complexity. The low-complexity services are distributed in the Caribbean node (n = 1669), the Pacific node (*n* = 1210), the Central node (*n* = 862), the Northeast node (*n* = 1063), Orinoquía (*n* = 645), Amazon (*n* = 118), and Bogotá (*n* = 498). The medium-complexity services are dispersed among the Caribbean node (*n* = 5), Central node (*n* = 4), and Pacific node (*n* = 2). The only high-complexity service reported belongs to the Northeast node (Santander). The regions with the medium-complexity services are Atlántico (*n* = 3), Antioquia (*n* = 2), Caldas (*n* = 2), Chocó (*n* = 1), Guajira (*n* = 1), Magdalena (*n* = 1), and Valle del Cauca (*n* = 1).

Time evolution and growth of services

It was found that 48.22% (*n* = 2930) of the aperture of services has been concentrated in the last five years (2016-2020). With 2020 being the year with greatest openings with 782 new services, followed by 2006 with 691 (Graphic 1). The record shows 10 services that do not report aperture date, thus, these were not considered to analyze this variable.



Graphic 1. Overall growth of nursing services. Colombia, 2002-2020

Between 2016 and 2020, the nodes that have shown greater increase in the service offer are Caribbean (*n* = 909) and Pacific (*n* = 499), while Amazon (*n* = 48) has revealed the lowest offer during the last five years.

Discussion

The current approach on primary health care for universal coverage and compliance of the goals of sustainable development related with health propose as indicator assessment of the density of health workers per population, disaggregating the level where services are provided and the subnational area where the resource is available. (13) Following this recommendation, the work present results on the services of first level of nursing care in the Colombian territory, evaluating its availability per regions and nodes to understand the geographic and population differences.

The national mean of density of nursing services per 100 000 inhabitants is 14.53, a low figure when compared with data from member countries of the European Union with an availability of 44 units of primary care per 100 000 inhabitants. (14) It is necessary to increase the offer of nursing services, given that they enhance access for the population to primary-care services and speed up the progress toward universal coverage. Although the Global Health Observatory reports data related with the density of nurses per every 10 000 inhabitants, as well as the density of nurses working in mental health per every 100 000 inhabitants, no figures have been published on the availability of nursing services, which supposes a void in the design of indicators and, hence, the lack of a standard that permits comparing the results obtained in this study. (15)

The density of nursing services in regions, like Antioquia (4.47) and Bogotá (6.56) has the lowest levels; however, these territories have offers of other health services, for example, these two regions have 940 and 1,650 health-service provider institutions, respectively, which allows them meet the demands of the population. (16) The Pacific node has the highest density mean per 100 000 inhabitants; however, the regions with highest number of nursing services are Bogotá, Antioquia, and Valle del Cauca, although the results of the density indicator are at suboptimal levels; the foregoing related with the high population demand. It is relevant to highlight that the use and analysis of indicators, like density of services per 100 000 inhabitants, when considering the number of inhabitants per region, may lead to an erroneous interpretation of the offer of nursing services. Regarding the known regional heterogeneity and with the purpose of avoiding confusing conclusions, regional raw data are presented concomitantly in this study.

This study found important disparity in the offer of services among regions (Valle del Cauca has 576 services, unlike Vaupés and Guainía with five services each). These results are coherent with global research that shows a greater concentration of health professionals in urban areas or large cities;(17-19) for Colombia, this is similar to that found by Mendieta and Jaramillo, whose research indicates that the country continues being incredibly unequal regarding access by the population to hospital centers and health professionals, given that although Colombia has 23 of the 58 best hospitals in Latin America, these centers are concentrated in Bogotá, Medellín, Cali, and Bucaramanga, while regions, like Orinoquía, Pacific, or Amazon do not have a basic health center.(20)

Nursing services are framed principally on providing outpatient care (72%); nevertheless, the study detected 21% home services, which implies the professional and disciplinary response to the demographic and epidemiological changes derived from the chronicity of long-standing non-communicable diseases,(21) as well as mobile nursing services as a mechanism that permits bringing health services closer to the communities. It was identified that the nursing practice is carried out in institutions with social object different from that of providing health services in 3.42% (*n* = 208), like educational institutions, centers for the elderly, and rehabilitation centers, among others. This result reflects the participation by nursing professionals in different settings where the individuals develop their work and ratifies their intervention in the different stages of the vital cycle. Nursing care in educational centers permits contact by the population with health services without being within the framework of health institutions, besides favoring the construction of physically(22) and mentally(23,24) healthy environments, as well as the possibility of extending the interventions to the family(25).

Enabling nursing services as professionals who perform a liberal exercise(26) is at 1.53%, corresponding to 93 nursing services, which is similar to other professionals in medicine and psychology, but extremely low when considering that in the country 652 of the therapy professionals perform this type of practice in home service modality.(10) Although nursing services can enhance the population's access to services of first level of care, it is necessary to improve the number of professionals in the region;(27,28) according to the Organization for Economic Co-operation and Development(29) for 2019, in Colombia, the availability of nursing staff was 1.3 per 1,000 inhabitants, only above Indonesia with 1.2 and far below the European nations.

Colombian regulations recognize that the offer of services can be classified by their complexity, as low and medium, with the latter for professionals with Specialist degree.(9) This study identified 10 medium-complexity services, which is a significant finding in function of the offer of 15 disciplinary graduate training programs in the areas of child, maternal-perinatal, elderly and family nursing.(30) The study found 48.22% (*n* = 2,930) of the aperture of services has concentrated in the last five years (2016 - 2020). This growth responds to the WHO call to enhance primary health care, to achieving the objectives of sustainable development,(31,32) particularly health and wellbeing, and decent work and economic growth, as pillars that directly affect the health system. Nursing services of first level of care are, then, a response regarding the imminent need to increase the capacity of health systems and meet the demand for primary care from the people, families, and communities.(33)

Studies have been conducted on the distribution of the labor force in nursing or the availability of professionals in the regions,(34-36) however, given that the professional nursing practice is present in hospital environments, it is considered that a future area of research should focus on the distribution of nursing services in the first level of care, on their relation with improving the quality of life of the population and the population's health results, and incorporation of advanced nursing care in services of first level of care in Colombia.

In conclusion, the characterization of nursing services identified an increase in the offer of nursing services and their availability throughout the Colombian territory; however, the number of services available has important differences per region and per node, which implies lower opportunities for access to health care. Nursing services are provided mainly in outpatient manner and linked to health organizations, thereby, home nursing care and their presence in educational settings represent a strategy to bring health services closer to the population.

References

1. World Health Organization, United Nations Children's Fund. Operational framework for primary health care: transforming vision into action [Internet]. Geneva: WHO, UNICEF; 2020. Available in: https://www.who.int/publications/i/item/9789240017832
2. Kroeger A, Luna R. Atención primaria de salud: principios y métodos. Estados Unidos: OPS; 1987.
3. Organización Mundial de la Salud, Fondo de las Naciones Unidas para la Infancia. Declaración de Astaná. Conferencia Mundial sobre Atención Primaria en Salud [Internet]. 2018. Available in: https://www.who.int/cs/default-source/primary-health/declaration/gcphc-declaration-sp.pdf
4. Keleher H, Parker R, Abdulwadud O, Francis K. Systematic review of the effectiveness of primary care nursing. Int J Nurs Pract. February, 2009;15(1):16-24.
5. Consejo Internacional de Enfermería. Definición de enfermería [Internet]. 2021. Available in: https://www.icn.ch/es/politica-de-enfermeria/definiciones
6. Viamonte KR, Guillot CD. La atención primaria de salud y la enfermería. Revista UNIANDES Episteme. 2016;3(3):384-401.
7. Ministerio de Salud y Protección Social de Colombia. Ruta integral de atención para la promoción y mantenimiento de la salud en el curso de vida de carácter individual y colectivo [Internet]. Bogotá: El Ministerio; 2022. Available in: https://www.minsalud.gov.co/salud/publica/ssr/Paginas/Rutas-integrales-de-atencion-en-salud-RIAS.aspx#:~:text=Ruta%20integral%20de%20atenci%C3%B3n%20para,y%20comunidades%3B%20incluye%20como%20atenciones
8. Andrade AM, Silva KL, Seixas CT, Braga PP. Nursing practice in home care: An integrative literature review. Rev Bras Enferm. February, 2017;70(1):210-9. https://doi.org/10.1590/0034-7167-2016-0214
9. Ministerio de Salud y Protección Social. Resolución 0003100 de 2019 [Internet]. Available in: https://www.minsalud.gov.co/Normatividad_Nuevo/Resolución No. 3100 de 2019.pdf
10. Ministerio de Salud y Protección Social. Registro Especial de Prestadores de Servicios de Salud - REPS [Internet]. Colombia; 2020. Available in: https://prestadores.minsalud.gov.co/habilitacion/
11. Departamento Administrativo Nacional de Estadística. Censo Nacional de Población y Vivienda 2018 [Internet]. Colombia, 2018 [cited 23 December 2020]. p. 1. Available in: https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-nacional-de-poblacion-y-vivenda-2018/cuantos-somos
12. León MX, Sánchez-Cárdenas MA, Rodríguez-Campos L, De Lima L, Velasco AL, Gamboa-Garay OA, García IP. Consumo de opioides. Análisis de su disponibilidad y acceso en Colombia [Internet]. Bogotá: Universidad de La Sabana, Universidad El Bosque; 2019 [cited 07 march 2021]. Available in: https://publicaciones.unisabana.edu.co/publicaciones/publicaciones/medicina/consumo-de-opioides/
13. World Health Organization. Primary health care for universal health coverage and the health-related sustainable development goals performance measurement and monitoring. Geneva: WHO; 2020.
14. European Health Information Gateway. Primary health care units per 100,000. 2020. Available in: https://gateway.euro.who.int/en/indicators/hfa_474-5030-primary-health-care-units-per-100-000/visualizations/#id=19529&tab=table

15. Institute for Health Metrics and Evaluation. Global health data exchange [Internet]. 2020. Available in: http://ghdx.healthdata.org/gbd-results-tool
16. Rozo O, Acosta AL. Caracterización Registro Especial de Prestadores de Servicios de Salud (REPS)-IPS. Ministerio de Salud y Protección Social [Internet]. 2017. Available in: https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/PES/caracterizacion-registro-especial-prestadores-reps.pdf
17. Portela GZ, Fehn AC, Ungerer RL, Poz MR. Recursos humanos em saúde: crise global e cooperação internacional. Ciência & Saúde Coletiva. 2017; 22:2237-46. https://doi.org/10.1590/1413-81232017227.02702017
18. Crisp N, Chen L. Global supply of health professionals. NEJM. 06 March 2014; 370(10):950-7. https://doi.org/10.1056/NEJMra1111610
19. Girardi SN, Carvalho CL, Maas LW, Araujo JF, Massote AW, Stralen AC, *et al*. Preferências para o trabalho na atenção primária por estudantes de medicina em Minas Gerais, Brasil: evidências de um experimento de preferência declarada. Cad. Saúde Pública [Internet]. 21 August 2017; 33: e00075316. https://doi.org/10.1590/0102-311X00075316
20. Mendieta-González D, Jaramillo CE. El sistema general de seguridad social en salud de Colombia. Universal, pero ineficiente: a propósito de los veinticinco años de su creación. Rev. latinoam. derecho soc [Internet]. Diciembre, 2019;(29):201-18. https://doi.org/10.22201/iij.24487899e.2019.29.13905
21. Huguet XB, Ramírez EL, Lombardo FC. Propuestas para la atención domiciliaria del siglo XXI. Atención Primaria [Internet]. May 2018; 50(5):264. https://doi.org /10.1016/j.aprim.2017.11.003
22. Rodríguez HD, Hernández MM. Necesidad percibida del profesorado de educación infantil, primaria y secundaria sobre formación en salud e implantación de la figura de la enfermera escolar. Metas de enferm. [Internet]. 2018;21(9):5-12. Available in: https://dialnet.unirioja.es/servlet/articulo?codigo=6629797
23. Alencastro LC, Silva JL, Komatsu AV, Bernardino FB, Mello FC, Silva MA. Teatro del oprimido y el bullying: el desempeño de enfermería en la salud escolar de los adolescentes. R Bras Enferm REBEn [Internet]. 2020;73(1). https://doi.org/10.1590/0034-7167-2017-0910
24. Silva MA, Monteiro EM, Braga IF, de Carvalho MD, Pereira B, de Oliveira WA. Intervenciones antibullying desarrolladas por enfermeros: revisión integradora de la literatura. Enferm Global [Internet]. 01 October 2017; 16(4):532-76. https://doi.org/10.6018/eglobal.16.4.267971.
25. Terán RÁ, Fanlo ME, Moreno SM. La enfermería escolar: un recurso necesario para la comunidad educativa. CONTEXTOS EDUCATIVOS. June 2018; 28(22):165-80. https://doi.org/10.18172/con.3374
26. Osorio F, Cenit V. Ejercicio liberal de la enfermera (o) en el área materno infantil. Aquichan. December 2002; 2(1):49-60. Available in: https://dialnet.unirioja.es/servlet/articulo?codigo=2107454
27. Organización Mundial de la Salud (OMS). Informe sobre la salud en el mundo. Colaboremos por la salud 2006 [Internet]. Capítulo 1. Available in: https://www.who.int/whr/2006/es/
28. Chen L, Evans T, Anand S, Boufford JI, Brown H, Chowdhury M, *et al*. Human resources for health: overcoming the crisis. The Lancet [Internet]. 27 November 2004; 364(9449):1984-90. https://doi.org/10.1016/S0140-6736(04)17482-5
29. Organization for Economic Cooperation and Development (OECD). Health workforce policies in OECD countries: right jobs, right skills, right places. Paris: OECD; 2016. https://doi.org/10.1787/9789264239517-en
30. Ministerio de Educación. Sistema Nacional de Información para la Educación Superior en Colombia [Internet]. Colombia; 2020. Available in: https://hecaa.mineducacion.gov.co/consultaspublicas/programas
31. Organización Mundial de la Salud (OMS). Estrategia mundial de recursos humanos para la salud: personal sanitario 2030 [Internet]. Geneva: WHO; 2016. Available in: https://apps.who.int/iris/handle/10665/254600
32. Organización Mundial de la Salud (OMS). Resolución CD53.R14. Estrategia para el acceso universal a la salud y la cobertura universal de salud. Washington, D.C. Available in: https://iris.paho.org/handle/10665.2/7652
33. Poghosyan L, Liu J, Norful AA. Nurse practitioners as primary care providers with their own patient panels and organizational structures: a cross-sectional study. IJNURSTU [Internet]. 01 September 2017; 74:1-7. https://doi.org/10.1016/j.ijnurstu.2017.05.004
34. Cassiani SH, Hoyos MC, Barreto MF, Sives K, da Silva FA. Distribución de la fuerza de trabajo en enfermería en la Región de las Américas. Rev Panam Salud Publica. 2018;42. https://doi.org10.26633/RPSP.2018.72
35. Cassiani SH, Zug KE. Promoting the advanced nursing practice role in Latin America. R Bras Enferm REBEn [Internet]. October 2014; 67(5):673-4. https://doi.org/10.1590/0034-7167.2014670501
36. Oldenburger D, De-Bortoli-Cassiani SH, Bryant-Lukosius D, Valaitis RK, Baumann A, Pulcini J, *et al*. Implementation strategy for advanced practice nursing in primary health care in Latin America and the Caribbean. Rev Panam Salud Publica. [Internet]. 08 June 2017; 8;41:e40. Available in: https://www.scielosp.org/article/rpsp/2017.v41/e40/

“Comprehensive Care” Concept in Nursing: Systematic Review

Original article

Alina Renghea[1,6]
https://orcid.org/0000-0001-6810-6424
Miguel Angel Cuevas-Budhart[2]
https://orcid.org/0000-0002-3379-0147
Hugo Yébenes-Revuelto[3,6]
https://orcid.org/0000-0002-0448-217X
Mercedes Gómez del Pulgar[4,6]
https://orcid.org/0000-0002-0418-2337
María Teresa Iglesias-López[5,6]
https://orcid.org/0000-0003-4511-5592

“Comprehensive Care” Concept in Nursing: Systematic Review

Abstract

Introduction. Integrated health care is a concept widely used in the planning and organisation of nursing care. It is a highly topical concept, but at the same time it is deeply rooted in the theory and models of Nursing right from its inception as a science. There is no clear, agreed definition that describes it. **Objective.** To systematise the knowledge available on the concept of “comprehensive care” in Nursing from the point of view of nursing care, its domains and characteristics. **Methods.** A literature search has been carried out in several languages (Spanish, Portuguese, English and Romanian) in the databases Web of Science, Scopus, Medline, PubMed, Cochrane and Dialnet, covering the period between 2013 and 2019. The search terms used were: *comprehensive health care, health and nursing.* Prospero register 170327. **Results.** Sixteen documents were identified, which grouped 8 countries, mainly Brazil, being the country with the highest output

---

1 Enfermera, Candidata a Doctora. Profesora. Email: a.renguea@ufv.es
2 Enfermero, Candidato a Doctor. Unidad de Investigación Médica en Enfermedades Nefrológicas, IMSS, México. angel_budhart@hotmail.com
3 Biólogo, Doctor. Profesor. Email: hugo.yebenes@ufv.es
4 Enfermera, Doctora. Profesora. Email: m.gomezdelpulgar@ufv.es
5 Farmacéutica, Doctora. Profesora. Email: m.iglesias.prof@ufv.es. Corresponding author.
6 Facultad de Ciencias de la Salud. Universidad Francisco de Vitoria

Conflicts of interest: None.

Received: October 29, 2021.

Approved: October 5, 2022.

How to cite this article: Renghea A, Yébenes-Revuelto H, Gómez del Pulgar M, Iglesias-López, MT. “Comprehensive Care” Concept in Nursing: Systematic Review. Invest. Educ. Enferm. 2022; 40(3):e05.

DOI: https://doi.org/10.17533/udea.iee.v40n3e05

Investigación y Educación en
Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

on this context– 10 documents were found within the qualitative paradigm and 6 quantitative ones. The concept "Comprehensive Care" is commonly used to refer to comprehensive nursing care techniques, protocols, programmes and plans, covering care in all aspects of the individual as a complement to or independent of the clinical needs arising from health care. **Conclusion.** The definition of features pertaining to the concept "Comprehensive Care" encourages the use and standardisation of nursing care plans, improving patient follow-up, the detection of new risk factors, complications and new health problems not related to the reason for admission. This increases the capacity for prevention and improves the patient's quality of life, and their primary and/or family caregivers, which translates into lower costs in the health system.

Descriptors: comprehensive health care; nursing care; systematic review.

Concepto de "Cuidados Integrales" en Enfermería: Revisión sistemática

Resumen

Antecedentes. El cuidado integral en términos de salud es un concepto muy utilizado en la planificación y organización de los cuidados enfermeros. Es un concepto muy actual, pero a la vez muy arraigado en la teoría y los modelos de Enfermería desde sus principios cómo ciencia. No obstante, no existe una definición clara, consensuada que lo describa.
Objetivo. Sistematizar los conocimientos disponibles sobre el concepto de "cuidado integral" en Enfermería desde el punto de vista del cuidado de enfermería, sus dominios y características. **Métodos.** Revisión sistemática de la información en idioma inglés, español, romaní y portugués en las siguientes bases de datos: Web of Science, Scopus, Medline, PubMed, Cochrane y Dialnet. Dicha búsqueda abarcó el período comprendido entre 2013 y 2020. Los términos usados fueron: *comprehensive health care, health and nursing*. Prospero register 170327. **Resultados.** Se identificaron dieciséis documentos, que agruparon a 8 países, principalmente Brasil, siendo el país con mayor producción en este contexto, se encontraron 10 documentos dentro del paradigma cualitativo y 4 cuantitativos. El concepto "Cuidados Integrales" es comúnmente utilizado para referirse a las técnicas, protocolos, programas y planes de cuidados integrales de enfermería, que abarcan el cuidado en todos los aspectos del individuo como complemento o independiente de las necesidades clínicas derivadas del cuidado de la salud. **Conclusión.** La definición de características propias del concepto "Cuidados Integrales" favorece la utilización y estandarización

de los planes de cuidados de enfermería, mejorando el seguimiento de los pacientes, detectando nuevos factores de riesgo, complicaciones y nuevos problemas de salud no relacionados con el motivo de ingreso. Esto aumenta la capacidad de prevención y mejora la calidad de vida del paciente y de sus cuidadores principales y familiares, lo que se traduce en menores costes en el sistema sanitario.

Descriptores: atención integral de salud; atención de enfermería; revisión sistemática.

Conceito de "Cuidado Integral" em Enfermagem: Revisão Sistemática

Resumo

Antecedentes. O cuidado integral em saúde é um conceito amplamente utilizado no planejamento e organização da assistência de enfermagem. É um conceito muito atual, mas ao mesmo tempo profundamente enraizado na teoria e nos modelos de Enfermagem desde seus primórdios como ciência. No entanto, não existe uma definição clara e consensual que a descreva. **Objetivo.** Sistematizar o conhecimento disponível sobre o conceito de "cuidado integral" em Enfermagem sob o ponto de vista do cuidado de enfermagem, seus domínios e características. **Métodos.** Revisão sistemática de informações em inglês, espanhol, romani e português nas seguintes bases de dados: Web of Science, Scopus, Medline, PubMed, Cochrane e Dialnet. Essa busca abrangeu o período entre 2013 e 2020. Os termos utilizados foram: atenção integral à saúde, saúde. e enfermagem. Registro Prospero 170327 **Resultados.** Foram identificados 16 documentos, que agruparam 8 países, principalmente o Brasil, sendo o país com maior produção neste contexto, foram encontrados 10 documentos dentro do paradigma qualitativo e 4 quantitativos. O conceito "Cuidado Integral" é comumente utilizado para se referir às técnicas, protocolos, programas e planos de assistência integral de enfermagem, que englobam o cuidado em todos os aspectos do indivíduo como complemento ou independente das necessidades clínicas derivadas do cuidado em saúde. **Conclusão.** A definição das características do conceito "Cuidado Integral" favorece a utilização e padronização dos planos de assistência de enfermagem, melhorando o acompanhamento do paciente, detectando novos fatores de risco, complicações e novos problemas de saúde não relacionados ao motivo da internação. Isso aumenta a capacidade de prevenção e melhora a qualidade de vida do paciente e de seus cuidadores primários e familiares, o que se traduz em menores custos no sistema de saúde.

Descritores: assistência integral à saúde; cuidados de enfermagem; revisão sistemática.

Introduction

In recent years, providing quality care has been a priority issue for the health system, managers and health professionals.(1) Therefore, comprehensive care is the concept most widely used, with the aim of describing health care as a complete service, technically correct, humanised and individual-friendly.(2) However, the concept lacks defining criteria in healthcare in general and in nursing in particular, as our profession is very broad and has competencies in all healthcare areas. Caring has been strictly linked to nursing since the beginning of the profession and has been perfected and professionalised as nursing models have evolved. These are the basis of the general guidelines for clinical practice together with the nursing work method (the Nursing Care Process and its implementing tool– The Care Plan). In the research field, nursing models allow knowledge to be organised and direct researchers towards those health problems that need to be known in greater depth.(3,4)

According to the American Nursing Association, the nursing process is considered as a standard for nursing practice; its importance has demanded substantial changes in its stages, favouring the development of the profession as a scientific discipline, which in turn has increased the quality of care.(5,6) The nursing process consists of five stages, which are closely related– assessment, diagnosis, planning, implementation and evaluation. For this study, we will refer only to the first two stages. The nursing process is designed to respond to the needs of the people we care for and to restore the patient's health and autonomy. It has become the nurses' most valuable tool. Today, the Nursing Care Plan provides the necessary support for the implementation of nursing care. On this basis, nursing care must be applied to all persons needing it and in all its aspects, both in the family and in the patient's social and environmental settings. Therefore, the nursing model is based on care, both in theory and in practice, which has been enriched and completed over time. It is noteworthy that by identifying the concept of comprehensive care "foundations are laid to achieve optimal results in care, favouring comprehensive care for the individual in all areas– biophysiological, psychological, social and spiritual.(7-9)

Under this premise, this study answers the following research question: What is the best scientific evidence available on the concept of "comprehensive health care" in Nursing care from the point of view of nursing care, its domains, and its characteristics? The definition of the concept starts from an analogy between concepts with the purpose of clarifying logical points and establishing relevant concepts of the domain that unite them, for which the exhaustive analysis of the information is used as a research technique, with the intention that this definition serves as a new line of research and that has a greater level of depth. In order to have arguments to support this assessment, the specific objective of this review is to systematize the available knowledge on the "comprehensive health care" concept in nursing from standpoint of the point of view of nursing care, its domains, and its characteristics.

Methods

A systematic review was conducted as a scientific method for the identification, collection, evaluation and synthesis of existing scientific evidence.(9) However, an integrative review method was also used, as it provides a systematic and rigorous process designed to enable a comprehensive understanding of the context.(10) The search was standardised and systematised to obtain the most relevant information about the concept of "Comprehensive Care". It is worthy to mention the significance of defining the concept in the nursing care framework through the care plan, to measure the quality of service in nursing, and to detect improvement areas.

Eligibility Criteria. All works were considered eligible, both qualitative and quantitative, of type retrospective, prospective, and cross-sectional studies, in addition, these studies should have been conducted by Nursing and with free access. To ensure that documents were only reviewed in the context of Nursing, exclusion criteria were required to further refine the search and the publications found during the database search. Thus, all studies that do not contain the concept of comprehensive health care in the title or the abstract, as well as studies that do not refer to comprehensive health care oriented to nursing practice, were excluded.

Search Strategy. To search for information, only observational scientific articles were included, whether transversal or longitudinal, published from January 2013 to 2020, available in open access, published in English, Spanish, Romanian and Portuguese.

The databases consulted were Web of Science, Scopus, Medline, PubMed, Cochrane, and Dialnet. The keywords used were comprehensive health care, health. and nursing, following the criteria established in Prisma.(11) The Boolean operators used were the intersection: AND to establish the logical operations between concepts, OR to retrieve documents containing at least one of the specified arguments, and NOT to indicate that the keyword before the operator must appear, but not the one after it: Comprehensive health care AND health care AND Nursing NOT holistic care.

Screening Process. All publications included were reviewed in full by the authors. Data extraction included country identification, study design, and key findings. Moreover, a review of publication type was conducted. If it was a research publication, then the type of study, sample, and purpose of the publication was recorded. For the selection process, duplicates were removed, followed by a check of the titles and abstracts by selecting documents that could be relevant to the study successively in the first screening. The presence of the ''comprehensive care'' concept and a subsequent reference to Nursing were sought in the title and abstract of each article. The evaluation of the methodological quality of the articles included was carried out through a tool for the evaluation of studies resulting from qualitative research.(12) For the quantitative studies, the STROBE (14,15) report on observational studies in epidemiology was used.
This review has been registered in PROSPERO with reference number 170327.

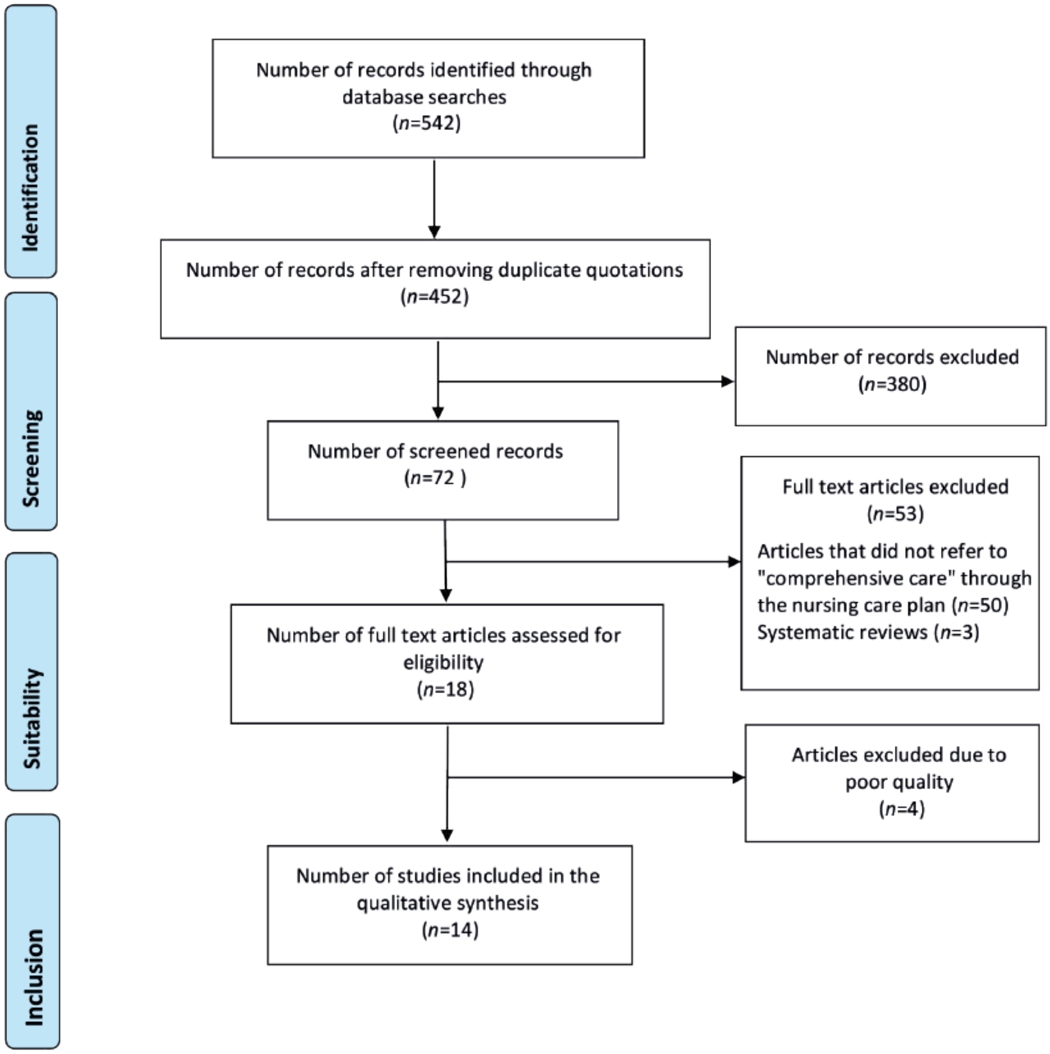


Figure 1. Flow-chart of Prisma diagram

Results

After removing duplicates, the primary search reviewed 452 scientific articles from databases such as Web of Science, Scopus, Medline, PubMed, Cochrane and Dialnet. These were selected according to the title, abstract and full text, thereby limiting in each stage. The main reasons for rejection were that the studies did not provide a description of comprehensive care within the title and abstract, and that the concept was not found within clinical practice. The final analysis of the studies included in the qualitative synthesis showed 14 articles (Figure 1).

In accordance with the inclusion criteria established in the first screening of this search in the aforementioned databases, 72 references were found and 380 were excluded due to the type of methodological design, and because they did not meet the inclusion criteria related to the review's objective, therefore, as a result of this process, 72 results meeting the defined criteria were selected. It was decided to carry out a second screening in order to select those articles that were available in full text and included the concept of comprehensive care specifically through nursing care plans or nursing interventions, and which were not literature reviews. After this second screening, 18 potentially relevant references were selected to assess the methodological design in terms of the inclusion criteria established in the second screening. Eight different countries were identified from the 14 documents to be jointly evaluated (Table 1). The country with the highest scientific output in this context is Brazil with 8 documents (57%),(7,9,16-22) USA,(23) Australia,(24) Iran,(25) Ghana,(8) Colombia,(26) and India(27) with one study each per country.

Table 1. Summary of selected articles

Reference 7. Rocha RCNP, Pereira ER, Silva RMCRA, Medeiros AYBBV, Refrande SM, Refrande NA. Spiritual needs experienced by the patient's family caregiver under Oncology palliative care. Rev. Bras. Enferm. 2018; 71:2635–42

Country: Brazil
Study design: Qualitative
Objective: To understand the spiritual needs of the patients' family caregiver under Oncology palliative care.
Sample: 20
Type of population: Family members, primary caregivers.
Key results: It concludes that spiritual care is part of comprehensive care, and it is important in the life of the patient; family members underestimate it, and nurses are expected to include it in the patient care.
Evaluation of methodological quality: Moderate = 9.

Reference 8. Agyeman-Yeboah J, Korsah K, Okrah J. Factors that influence the clinical utilization of the nursing process at a hospital in Accra, Ghana. BMC Nursing. 2017;16(1):30.

Country: Ghana.
Study design: Qualitative
Objective: The purpose of this research study was to explore the various factors that influence the utilization of this nursing process.
Sample: 10
Type of population: Nurses, supervising nurses and specialist nurses at the 37th Military Hospital, Ghana
Key results: The result shows that the care plan meets the requirements of comprehensive care in all the individual's areas, that it is not very operational and known within the nursing community, which is why it is not used as often as it should be.
Evaluation of methodological quality: Moderate = 9.

Reference 9. Galvão TLA, Oliveira KKD, Maia CAAS, Miranda FAN. Assistência à pessoa com Parkinson no âmbito da estratégia de saúde da família. Rev. Pesqui (Univ. Estado Rio J., Online). 2016; 8(4):5101–7.

Country: Brazil
Study design: Qualitative
Objective: To analyse the conceptions that the bearer of Parkinson's disease (PD) holds about the comprehensive care provided by the nurse.
Sample: 5
Type of population: Patients
Key results: It concludes that nurses do not support the personalised care plan for the patient, and do not include the family in the caring process, but do take responsibility for prevention, promotion and health education.
Evaluation of methodological quality: Moderate = 9.

Table 1. Summary of selected articles (Cont.)

Reference 16. Nóia T de C, Evangelista Sant'Ana RS, dos Santos ADS, Oliveira S de C, Veras SMCB, Lopes-Júnior LC. Coping with the diagnosis and hospitalization of a child with childhood cancer. Invest. Educ. Enferm. 2015; 33(3):465–72.

Country: Brazil
Study design: Qualitative
Objective: Find out how family members cope with hospitalization due to the diagnosis of childhood cancer.
Sample: 10
Type of population: Family caregivers of children with cancer
Key results: Caring for children with cancer disrupts family life in all its aspects. Comprehensive care is needed in all areas and needs of the patient. It concludes that a nurse must provide humanised and sensitive comprehensive care.
Evaluation of methodological quality: Moderate = 11.

Reference 17. Azevedo A, Scarparo A, Chaves L. Nurses' care and management actions in emergency trauma cases. Invest. Educ. Enferm. 2013; 31(1):36–43.

Country: Brazil
Study design: Qualitative
Objective: To analyse the nurses care and management actions in an emergency trauma hospital unit.
Sample: 11
Type of population: Nurses
Key results: It concludes that the nursing practice in the trauma emergency section comes close to the comprehensive care approach by complementing the patient care management with the services and resources management.
Evaluation of methodological quality: Moderate = 8.

Reference 18. Cattani AN, Foggiato de Siqueira D, Gomes Terra M. The care towards individuals in a Psychosocial Intervention Unit: meanings assigned by the nursing team. Rev. Pesqui (Univ. Estado Rio J., Online): 2018; 10(4):951–7.

Country: Brazil
Study design: Qualitative
Objective: To understand the meanings attributed by the nursing team to the care provided to people hospitalized in a psychosocial hospitalization unit of a public teaching hospital in Rio Grande do Sul, Brazil.**Sample**: 15
Type of population: Nurses
Key results: It concludes that comprehensive care must be provided for all the individual's needs, and that this care extends beyond discharge and includes the family, and that nursing is a group whose objective as a profession is the comprehensive care of the individual.
Evaluation of methodological quality: Optimal = 12.

Reference 20. de Carvalho Furtado M, Falleiros de Mello D, Coelho Pina J, Batistela Vicente J, Remundini de Lima P, Dias Rezende V. Nurses' actions and articulations in child care in primary health care. Texto Contexto Enferm. 2017; 27(1):e0930016.

Country: Brazil
Study design: Qualitative
Objective: Understand how nursing care for children under five is configured in Family Health Units, focusing on comprehensive care.
Sample: 26
Type of population: Review of paediatric NCPs and during nursing interventions in medical consultation
Key results: It recommends meeting the requirement to practice comprehensive care, including the family, and also children. This recommendation, moreover, coincides with current public health policies.
Evaluation of methodological quality: Optimal = 12.

Table 1. Summary of selected articles (Cont.)

Reference 22. Rocha MGL, Linard AG. View of Women perceptions on the comprehensive care in the context of prevention of cervical cancer. Rev. Rene. 2016; 17(5):676–83. **Country:** Brazil **Study design**: Qualitative **Objective**: To know the perceptions of women on the comprehensive health care in the context of prevention of cervical cancer. **Sample**: 34 **Type of population**: It concludes that comprehensive care improves the quality of life of patients, avoids complications and detects potential health problems more accurately, but that implementation depends on the nursing professionals. **Evaluation of methodological quality**: Moderate = 11.
Reference 23. Britton M, Ouellet K, Gawel E, Hodshon S. Care Transitions Between Hospitals and Skilled Nursing Facilities: Perspectives of Sending and Receiving Providers. Jt. Comm. J. Qual. Patient Saf. 2017; 43(11):565–72. **Country:** EEUU **Study design**: Qualitative **Objective**: To identify the perspectives of sending and receiving providers regarding care transitions between the hospital and the SNF **Sample**: 31 **Type of population**: Nurses, supervisors, doctors, social workers and patients **Key results:** It concludes that, due to the complexity of chronic patients, communication with the patient and his or her psychosocial needs must be improved. **Evaluation of methodological quality**: Optimal = 22.
Reference 24. Peel NM, Hornby-Turner YC, Henderson A, Hubbard RE, Gray LC. Prevalence and Impact of Functional and Psychosocial Problems in Hospitalized Adults: A Prospective Cohort Study. J. Am. Med. Dir. Assoc. 2019; 20(10):1294-1299.e1. **Country:** Australia **Study design**: Cross-sectional, descriptive **Objective**: To investigate the prevalence of functional and psychosocial problems in hospitalized adults, to compare prevalence rates across age groups, and to assess their impact on discharge outcomes **Sample**: 910 **Type of population**: Patients **Key results:** It concludes that due to the high prevalence of psychosocial problems in the studied population, it is recommended that this type of care be included in nursing care plans, as part of comprehensive inpatient and post-discharge care. **Evaluation of methodological quality**: Optimal = 20
Reference 25. Kavosi A, Taghiabadi M, Mohammadi G, Yazdi K, Shirdelzadeh S, Nasiri H, et al. Nursing manager's attitude toward spirituality and spiritual care in Khorasan Razavi Province hospitals in 2016. Electron. Physician. 2018; 10(3):6571. **Country:** Irán **Study design**: Cross-sectional, analytical **Objective**: The aim of this study was to determine nursing managers' attitude to spirituality and spiritual care in hospitals in Khorasan Razavi Province in 2016 **Sample**: 110 **Type of population**: Hospital management nurses in Khorasan Razavi province, Iran. **Key results:** The result showed significant differences between the attitude towards spirituality and spiritual care and the gender experience, age and work in nursing management (p <0.05). **Evaluation of methodological quality**: Optimal = 20.

Table 1. Summary of selected articles (Cont.)

Reference 26. Guerrero NS, Tobos LS. Care of an ostomized child: changes in family. Av. Enferm. 2013; 31(1):59-71.

Country: Colombia
Study design: Quantitative, Descriptive
Objective: Describe the impact of having an ostomised child on family dynamics, lifestyle and care preservation and traditional norms in the population of the Comprehensive Care Program for Ostomised Children and Adolescents and their Families at the University School of Nursing Nacional de Colombia at the Hospital de la Misericordia Foundation, Bogotá, Colombia.
Sample: 94
Type of population: Parents of children with an ostomy
Key results: It concludes that the care of a child with ostomy impacts all aspects of daily life. It emphasises the importance of caring for negative emotions and religion in the child's life. Furthermore, such care is part of a comprehensive health care strategy and it improves the child's quality of life.
Evaluation of methodological quality: Optimal = 21.

Reference 27. Pai R, Ongole R, Banerjee S. Oral care in cancer nursing: Practice and barriers. Indian J. Dent. Res. 2019; 30(2):226-30.

Country: Brazil
Study design: Cross-sectional, descriptive
Objective: To determine the nurses' practice and barriers regarding oral care in cancer patients undergoing chemotherapy and radiation therapy.
Sample: 159
Type of population: Nurses
Key results: It reminds nurses that oral cavity care is part of comprehensive care and should be included in the patient's regular care plan.
Evaluation of methodological quality: Optimal = 21.

Reference 32. Martínez LCV, Vidal LIE, Figueras MP, Hurtado JCT. Evaluating and promoting competencies for social entrepreneurship in university subjects. Rev. Estud. Cooperativos. 2019; 131:199–223.

Country: Brazil
Study design: Qualitative
Objective: Describe care needs and demands that mark the discursive practices of ostomised clients and family members and discuss guidelines for a comprehensive care program to ostomised clients and their families, organized by macrosociological categories.
Sample: 17
Type of population: Ostomised patients. Family members
Key results: Due to the complexity of the ostomised patient, it is important to make a special effort to address his or her psychosocial and spiritual needs, in order to improve his or her quality of life through comprehensive nursing care.
Evaluation of methodological quality: Optimal = 11.

Concerning the methodology used in the studies, the qualitative paradigm prevailed with(7,8,15-17,21,24-26,29) 62%, followed by the quantitative, three corresponding to the descriptive cross-sectional method(18,21-22) and a single observational, analytical cross-sectional article.(19)

The average population used was 103 patients, with a minimum of 5 and a maximum of 910. The population targeted by these studies was made up of various health professionals and specifically Nurses, Patients, Caregivers and family members. The concept of comprehensive care is referred to in most articles as complete care, beyond care related to the reason for admission at the admission time.(8,9,18,21,22,24,19) In addition, de Castro *et al.,*(24) Naidon *et al.,*(25) Pai, *et al.*(22) and Pell *et al.,*(18) include care for psychological needs. On the other hand,(7,16,25,26) add care for spiritual needs and others(19,21,26,27,16,23) emphasize care for social needs and Kavosi *et al.*(25) mention that communication by professionals is a significant part of comprehensive care, since it facilitates the relationship with the patient and his or her family, the understanding of his or her illness and the processes of examination, diagnosis and care planning; it weighs and moderates the expectations of healing, and allows the patient to be proactive and participate fully in all of them. In short, adequate communication humanises care and makes the patient the owner of his/her decision-making process.(16,19) On the other hand,(8,9,27,24) agree that the care plan is the best tool to provide comprehensive care and that nursing assessment allows for a patient examination in all its aspects, but they also highlight the need to continue the methodology and implementation training to increase our capacity and promptness when using them.

Assessment of Methodological Quality. The selected articles were evaluated using the peer review technique independently. Each study was evaluated for minimum quality. The methodological quality assessment was found to be between moderate and optimal, with the exception of 4 papers with low quality.(28-31)

Discussion

This research study aimed to identify how the concept of "comprehensive care" in nursing care has been described from a professional point of view. After a systematic search, 14 documents were identified using an appropriate methodology; these documents were both qualitative and quantitative. The concept "Comprehensive Care" is used to refer to or describe various health services. Regarding the nursing profession, it is mainly used to refer to comprehensive nursing care techniques, protocols, programmes and plans, which cover care in all areas of the individual as a complement to or independently of the clinical needs arising from care.

In the results of the systematic search, the Nursing Care Process is highlighted as an implementing tool for care planning as reflected by Noia *et al*.(15) and Overcash *et al*.(32) This includes a vehicle that allows the provision of comprehensive care applied to the needs that diseases trigger in all areas of the individual. Nevertheless, the care plan can be considered as a hardly operative tool that needs some time of evaluation for the patient, in order to provide an effective care, as mentioned by Andre *et al*.,(8) Alvarenga *et al.,*(29) Lima Rocha *et al.,*(16) Peel *et al*.,(18) and Overcash *et al.,*(32) for whom patients were the object of study.

Concerning the theoretical training, this should be focused on the health-disease process, diagnosis, treatment and approach to the patient in different circumstances, as sound scientific training improves and complements the nursing service, as ponted out by Overcash *et al.*(32) The technical specificity of the nursing practical skills is undeniable, as it is the importance of the theoretical biological support in the care for users. But the symbiosis between the other human conformations is also recognised, which at some point will coincide with the treatment, either to enhance it or to hinder it. Therefore, this outlook is presented from the beginning of training in academic life, highlighting for future professionals the integrating components of the paradigm and of the genuine human transcendence. Where the latter, even during physical illness, demonstrates elements that participate in the health continuum and spread beyond the homeostatic alteration.

On the other hand, it can be seen that nurses provide partial coverage of the care plan, since care in the psychosocial sphere is neglected due to the scarce inclusion of the family in the patient's comprehensive care.(8) However, providing psychosocial and spiritual care is paramount, since this care impacts directly on the patient's quality of life.(29) In addition, de Castro *et al*.(24) point out that good management of resources and services is necessary to achieve comprehensive care. It should be noted that, although at first glance they do not seem to be essential, nor do they seem to influence the patient's clinical situation, well-being and quality of life are impaired without the necessary care in the long term, or there may be cases of somatisation and major clinical complications that delay the patient's healing and complete recovery.

Providing comprehensive care for the individual in all aspects is a moral and ethical obligation for nursing, because it is based on the existence of meeting the needs that the disease triggers in people through the care plan, as an orderly nursing tool that allows diagnosis in all aspects and address the patient's needs. Nencetti *et al.*(7) and Agyeman-Yeboah, *et al.*(20) agree on this. In addition, according to Agyeman-Yeboah *et al.,*(8) having a care plan allows the patient to recover faster, avoids complications or health problems, increases patient satisfaction and autonomy and, in economic terms, reduces health costs.

It should be noted that, as a whole, the different tools constitute a system that contemplates the whole being, providing care with changing and versatile components in their implementation that provide different guidelines for the nursing method of each patient. With regard to comprehensive care in the family and primary caregiver(19,25,28) emphasise that comprehensive care must include spiritual care and seek to focus on the patient's circumstances through prevention, promotion and health education in the individual, family and community, extending to all ages.

This review supports reflective exercise where it is required to consider the patient and the primary caregiver within the interdisciplinary team, as they live and cope with the disease. This experience is useful and valuable during the different stages of the nursing method, giving a resolving nature demonstrated by modification of indicators.

Conclusion. Comprehensive care must be personalised and prioritise what the person needs most, even if it is not related to the clinical reason for admission. This care must be extended to the family and society. In addition, it should focus on spiritual care, social relations and personal projection, which are just as important as technical care, since their attention improves quality of life and patient satisfaction with the care received. Comprehensive care should be the lever that favours a balance between the patient's health, personal autonomy and satisfaction with his or her life in general terms.

References

1. Cuevas-Budhart MA, González-Martínez BR, Ayala-Torres M, Castro-Narváez X, Leyva-Alvarado C, Bahena-Acevedo DL. Incumplimiento de los indicadores de calidad de estructura en unidades de la dirección general de salud municipal en Acapulco. Rev. Conamed. 2018; 23(1):12–6.
2. Farfán Pesante R. Percepción de atención humanizada y su relación con la calidad de atención en el servicio de radiodiagnóstico. UCV - Scientia. 2016; 8(2):124–31.
3. Yañez AO, Klijn TP. Enfermería basada en evidencia. Barreras y estrategias para su implementacion. Cienc. Enferm. 2007; 13(1):17–24.
4. Liou S-R. Nurses' intention to leave: critically analyse the theory of reasoned action and organizational commitment model. J. Nurs. Manag. 2009; 17(1):92–9.
5. González-Castillo MG, Monroy-Rojas A. Proceso enfermero de tercera generación. Enferm. Univ. 2016; 13(2):124–9.
6. Álvarez-Bolaños E, Cegueda-Benítez BE, Cuevas-Budhart MA, González-Jurado MA, Gómez del Pulgar-García Madrid M. Diagnósticos Enfermeros prevalentes en pacientes mayores con úlceras por presión: estudio transversal. Enferm. Univ. 2019; 16(3):282-93.
7. Rocha RCNP, Pereira ER, Silva RMCRA, Medeiros AYBBV de, Refrande SM, Refrande NA. Spiritual needs experienced by the patient's family caregiver under Oncology palliative care. Rev. Bras. Enferm. 2018; 71:2635–42.
8. Agyeman-Yeboah J, Korsah K, Okrah J. Factors that influence the clinical utilization of the nursing process at a hospital in Accra, Ghana. BMC Nursing. 2017;16(1):30
9. Galvão TLA, Oliveira KKD, Maia CAAS, Miranda FAN. Assistência à pessoa com Parkinson no âmbito da estratégia de saúde da família. Rev. Pesqui (Univ. Estado Rio J., Online). 2016; 8(4):5101–7.
10. Moher D, Stewart L, Shekelle P. All in the Family: systematic reviews, rapid reviews, scoping reviews, realist reviews, and more. Syst. Rev. 2015; 4:183.
11. Whittemore R, Knafl K. The integrative review: updated methodology. J. Adv. Nurs. 2005; 52(5):546–53.
12. Bunten A, Porter L, Gold N, Bogle V. A systematic review of factors influencing NHS health check uptake: invitation methods, patient characteristics, and the impact of interventions. BMC Public Health. 2020:93.
13. Mora M. Instrumento para evaluación de estudios producto de investigación cualitativa Title: An Instrument for the Assessment of Qualitative Research. Rev. Col. Psiquiatri. 2009; 38(2):358–66.
14. Vandenbroucke J, von Elm E, Altman D, Gøtzsche P, Mulrow C, Pocock S, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. PLoS Med. 2007; 4(10):1628–54.
15. Alba-Leonel A, Fajardo-Ortiz G, Tixtha López E, Papaqui-Hernández J, Adela Alba-Leonel. . La comunicación enfermera-paciente en la atención hospitalaria, caso México. Enf. Neurol. (Mex). 2012; 11(3):138–41.
16. Nóia T de C, Evangelista Sant'Ana RS, dos Santos ADS, Oliveira S de C, Veras SMCB, Lopes-Júnior LC. Coping with the diagnosis and hospitalization of a child with childhood cancer. Invest. Educ. Enferm. 2015; 33(3):465–72.
17. Azevedo A, Scarparo A, Chaves L. Nurses' care and management actions in emergency trauma cases. Invest. Educ. Enferm. 2013; 31(1):36–43.
18. Cattani AN, Foggiato de Siqueira D, Gomes Terra M. The care towards individuals in a Psychosocial Intervention Unit: meanings assigned by the nursing team. Rev. Pesqui (Univ. Estado Rio J., Online): 2018; 10(4):951–7.
19. Figueiredo PA, Alvim NA. Guidelines for a Comprehensive Care Program to Ostomized Patients and Families: a Nursing proposal. Rev. Latino-Am. Enfermagem. 2016;24:e2694.
20. de Carvalho Furtado M, Falleiros de Mello D, Coelho Pina J, Batistela Vicente J, Remundini de Lima P, Dias Rezende V. Nurses' actions and articulations in child care in primary health care. Texto Contexto Enferm. 2017; 27(1):e0930016.
21. Furtado MC de C, Mello DF, Pina JC, Vicente JB, Lima PR, Rezende VD. Ações e articulações do enfermeiro no cuidado da criança na atenção básica. Texto Contexto Enferm. 2018; 27(1):930016.

22. Rocha MGL, Linard AG. View of Women perceptions on the comprehensive care in the context of prevention of cervical cancer. Rev. Rene. 2016; 17(5):676–83.

23. Britton M, Ouellet K, Gawel E, Hodshon S. Care Transitions Between Hospitals and Skilled Nursing Facilities: Perspectives of Sending and Receiving Providers. Jt. Comm. J. Qual. Patient Saf. 2017; 43(11):565–72.

24. Peel NM, Hornby-Turner YC, Henderson A, Hubbard RE, Gray LC. Prevalence and Impact of Functional and Psychosocial Problems in Hospitalized Adults: A Prospective Cohort Study. J. Am. Med. Dir. Assoc. 2019; 20(10):1294-1299.e1.

25. Kavosi A, Taghiabadi M, Mohammadi G, Yazdi K, Shirdelzadeh S, Nasiri H, et al. Nursing manager's attitude toward spirituality and spiritual care in Khorasan Razavi Province hospitals in 2016. Electron. Physician. 2018; 10(3):6571.

26. Guerrero NS, Tobos LS. Care of an ostomized child: changes in family. Av. Enferm. 2013; 31(1):59-71.

27. Pai R, Ongole R, Banerjee S. Oral care in cancer nursing: Practice and barriers. Indian J. Dent. Res. 2019; 30(2):226-30.

28. Lizcano A. Conocimientos, actitudes y grado de aplicación de cuidados integrales en la prevención cardiovascular por parte de la enfermera en el ámbito de la atención primaria [Dissertation]. Universidad Rey Juan Carlos: Madrid; 2014. Available from: https://burjcdigital.urjc.es/handle/10115/13572

29. Honda M, Ito M, Ishikawa S, Akebayashi Y, Tierney L. Reduction of Behavioral Psychological Symptoms of Dementia by Multimodal Comprehensive Care for Vulnerable Geriatric Patients in an Acute Care Hospital: A Case Series. Case Rep. Med. 2016; 2016:4813196.

30. Overcash J, Tan A, Patel K, Noonan A. Factors Associated with Poor Sleep in Older Women Diagnosed with Breast Cancer. Oncol. Nurs. Forum. 2018; 45(3):359–71.

31. Ranse K, Yates P, Coyer F. End-of-life care practices of critical care nurses: A national cross-sectional survey. Aust. Crit. Care. 2016; 29(2):83–9.

32. Martínez LCV, Vidal LIE, Figueras MP, Hurtado JCT. Evaluating and promoting competencies for social entrepreneurship in university subjects. Rev. Estud. Cooperativos. 2019; 131:199–223.

Original article

UNIVERSIDAD
DE ANTIOQUIA
1803

Effect of Benson's relaxation technique on caregiver burden in caregivers of hemodialysis patients. A Randomized Controlled Trial

Mahsa Imanian[1,3]
https://orcid.org/0000-0001-5600-8763
Somayeh Ramezanli[2,3]
https://orcid.org/0000-0003-0981-6498

Effect of Benson's relaxation technique on caregiver burden in caregivers of hemodialysis patients. A Randomized Controlled Trial

Abstract

Methods. This is a randomized controlled trial study on 52 caregivers of hemodialysis patients referred an universitary hospital at Jahrom. The caregivers were randomly divided into intervention and control groups. In the intervention group, Benson's relaxation was performed twice a day for 15 minutes each time, and continued for one month. Data collection tools included demographic information questionnaire and standard Zarit Burden Interview questionnaire which was completed by all participants before the intervention and one month after it. **Results.** After the intervention, the mean caregiver burden of hemodialysis patients in the intervention group decreased significantly compared to the control group ($p<0.001$). The results of paired t-test showed that in the intervention group, the mean scores of caregiver burden after the

1 Nurse Instructor, M.Sc. Email: mahsa.imanian@gmail.com
2 Nurse Instructor, M.Sc. Email: ramezanli1362@gmail.com. Corresponding author.
3 Department of Nursing, Jahrom University of Medical Sciences, Jahrom, Iran.

Conflicts of interest: None.
Receipt: February 4, 2022.
Approved: October 3, 2022.
How to cite this article: Imanian M, Ramezanli S. Effect of Benson's relaxation technique on caregiver burden in caregivers of hemodialysis patients. A Randomized Controlled Trial.Invest. Educ. Enferm. 2022; 40(3):e06.

DOI: https://doi.org/10.17533/udea.iee.v40n3e06.

Investigación y Educación en Enfermería
–Nursing Research and Education–
UNIVERSIDAD DE ANTIOQUIA 1803
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

intervention (14.46± 10.91) was significantly lower than before the intervention (38.33±16.94) (p=0.001). **Conclusion.** Benson's relaxation method can reduce caregiver burden in caregivers of hemodialysis patients.

Descriptors: caregiver burden; control groups; relaxation therapy; renal dialysis; kidney failure, chronic.

Efecto de la técnica de relajación de Benson en la carga del cuidador de pacientes en hemodiálisis. Un entudio controlado aleatorizado

Resumen

Objetivo. Investigar el efecto de la técnica de relajación de Benson sobre la carga de los cuidadores de pacientes en hemodiálisis. **Métodos.** Estudio de intervención realizado con la participación de 52 cuidadores de pacientes en hemodiálisis remitidos a un hospital universitario de Jahrom (Iran). Los cuidadores fueron divididos aleatoriamente en los grupos de intervención y de control. En el grupo de intervención, se realizó la técnica de relajación de Benson dos veces al día durante 15 minutos cada vez, y se continuó durante un mes. Las herramientas de recogida de datos incluían un cuestionario de información demográfica y la entrevista de percepción de carga del cuidador "Zarit Burden Interview" que fue completado por todas participantes antes de la intervención y un mes después de terminada la misma. **Resultados.** Después de la intervención, la carga media de los cuidadores de pacientes en hemodiálisis en el grupo de intervención disminuyó significativamente en comparación con el grupo de control ($p<0.001$). Los resultados de la prueba t pareada mostraron que en el grupo de intervención, las puntuaciones medias de la carga del cuidador después de la intervención (14.46±10.91) fueron significativamente menores que antes de la intervención (38.33±16.94) (p=0.001). **Conclusión.** El método de relajación de Benson puede reducir la carga de los cuidadores de pacientes en hemodiálisis.

Descriptores: carga del cuidador; grupos control; terapia de relajación; diálisis renal; fallo renal crónico;

Efeito da técnica de relaxamento de Benson na sobrecarga do cuidador em pacientes em hemodiálise. Um estudo controlado randomizado

Objetivo. Investigar o efeito do relaxamento de Benson na sobrecarga do cuidador em cuidadores de pacientes em hemodiálise na cidade de Jahrom. **Métodos.** Este é um estudo controlado randomizado envolvendo 52 cuidadores de pacientes em hemodiálise encaminhados a um hospital afiliado à Jahrom University of Medical Sciences. Os cuidadores foram divididos aleatoriamente em *grupos intervenção* (n=24) e controle (n=24). No grupo intervenção, os cuidadores realizaram o relaxamento de Benson duas vezes ao dia por 15 minutos cada, e foi continuado por um mês. A coleta de informações incluiu um questionário de informações demográficas e o questionário padrão Zarit que foi preenchido por todos os participantes antes da intervenção e um mês após o seu preenchimento. **Resultado** S. A maioria dos cuidadores nos grupos intervenção (79.2%) e controle (64.3%) eram mulheres. Após a intervenção, a sobrecarga média dos cuidadores de pacientes em hemodiálise no grupo intervenção diminuiu significativamente em relação ao grupo controle (p<0.001). Os resultados do teste t pareado mostraram que, apenas no grupo intervenção, os escores médios de sobrecarga do cuidador após a intervenção (14.46 ±10.1) foram significativamente menores do que antes da intervenção (38.33) ±16.94) com p <0.001. **Conclusão.** O método de relaxamento de Benson demonstrou ser eficaz na redução da sobrecarga dos cuidadores de pacientes em hemodiálise.

Descriptores: fardo do cuidador; grupos controle; terapia de relaxamento; diálise renal; falência renal crónica.

Introduction

Chronic kidney disease is a major and growing health concern all around the world. It is estimated that 750 million people worldwide suffer from chronic kidney disease of which about 3 million are on kidney dialysis.(1) Hemodialysis is a treatment that helps to improve the patient's physical condition by preventing the complications caused by uremia.(2) Moreover, hemodialysis reduces patients' energy levels and affects their ability in doing their daily activities, thereby disrupting the daily lives of patients and their caregivers.(1) Chronic diseases affect not only patients but also their caregivers.(3) For their daily lives and visiting hospital, hemodialysis patients need care and assistance of family and others, which places a significant burden on caregivers. The burden imposed by the care process on the family is mainly due to a combination of physical work, emotional stress, social constraints and economic needs while providing care to their patients, which leads to a significant reduction in the quality of life of caregivers and their health status.(2) Caring for patients with maintenance peritoneal dialysis causes physical, psychological and social stress in family caregivers, so that stress levels are affected by the severity of the disease and other demographic factors in patients and their caregivers.(4)

Also the caregiver burden in the caregivers of these patients increased because of mental and physical disorders caused by chronic kidney failure.(5) Hemodialysis caregivers are often family members or friends who support the patient physically, mentally, and socially. According to studies, caregivers of hemodialysis patients experience a high level of caregiver burden.(1) Caregiver burden may bring about feelings of guilt, disappointment, loneliness, depression, anger, stress, and lack of freedom, all of which could result in severe psychological problems.(6) Caregiver burden is a general term used to describe physical and mental problems as well as the financial cost of the care. Caregiver burden is defined as a persistent difficulty, stress, or negative experience resulting from the care provided by patient caregivers. Therefore, it is so important to assess the condition of caregivers and determine their needs.(7)

One of the methods which can soothe a wide range of physical and mental symptoms such as anxiety, depression, stress and pain is Benson's relaxation technique (BRT).(8) Relaxation can reduce tension in the peripheral muscles, reduce physiological problems and disorders and, through reducing anxiety, can increase physical activity and improve the feeling of well-being.(9) The use of complementary and alternative methods has been gradually increasing in recent years. Herbert Benson developed his technique based on the concepts of transcendent meditation. In this method, one becomes passive and allows calmness to develop and progress. Progressive muscle relaxation (PMR) has been developed to reduce stress and anxiety.(10) This cost-effective method does not require special equipment and can be easily used by people.(8) Generally speaking, patient caregivers are often given less attention and the main focus is usually on patients. Frequent hospitalization of patients and disease-related factors can worsen depression and reduce the quality of life of caregivers.(7)

The process of dialysis has a profound effect on the life of both patients and their caregivers. Moreover, most studies have dealt only with patients, and the interaction between the patient and the family (caregivers) has been overlooked by many researchers. On the other hand, there is a close relationship between the health of caregivers and patients and caregivers can play a significant role in the health and improvement of their hemodialysis patients. Studies show that some interventions such as psycho-educational intervention,(11) family intervention programs,(12) psychosocial Support(5) are effective in reducing the caregiver burden in caregivers of hemodialysis patients. Since the learning and teaching Benson's relaxation method is easy and requires no specific knowledge and skills and can easily be done by the caregivers of hemodialysis patients and considering the important role of caregivers in the process of caring for hemodialysis patients and the limited studies on the effect of BRT on reducing caregiver burden in this group of caregivers, therefore the present study aims to determine the effect of BRT on caregiver burden in caregivers of hemodialysis patients.

Methods

Design and participants

This study was a randomized controlled trial study. The caregivers of dialysis patients who had referred to the dialysis ward of Jahrom University of Medical Sciences in Iran from September to December. Inclusion criteria for the caregivers of the patients consisted of willingness to participate in the study, being 18-60-years-old, literacy and having the most contact with and care of the patient. These criteria for the patients included having at least six months' history of the disease, three 3-4 hour dialysis session per week and having no history of kidney transplantation. The caregivers who have recently been exposed to stressful events such as accidents, deaths of loved ones, financial losses, etc., as well as those with severe mental and physical disorders, or those who were attending psychological training and counseling sessions were excluded from the study.

According to the results of caregiver burden in previous study,(13) after intervention in control group (42.18 ± 13.73) and intervention group (31.92 ± 13.98),β=0.20, α= 0.05, effect size=0.74, sample size calculated 30 in each group and totally 60 caregivers.

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)^2 (\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2} = \frac{(1.96 + 0.84)^2(13.73^2 + 13.98^2)}{(42.18 - 31.92)^2} \approx 30$$

All eligible caregivers of hemodialysis patients were entered to the study by convenience sampling method with random allocation, when the sample size reached 60 sampling was stopped. Then, they were assigned equally into two intervention and control groups by simple randomization, using the table of random numbers and sampling frame (list of caregivers of hemodialysis patients available in the dialysis ward).

Six caregivers of hemodialysis patients in intervention group did not continue the study due to lack of willingness, long distance from their place of residence, failure to complete the BRT and death of patients; also, two caregivers in the control group did not return to the ward to complete the post-test because of the long distance from their place of residence. Eventually, 24 caregivers in the intervention group and 28 in the control group completed the study.

Data collection tools

Data was collected using questionnaires before and one month after the intervention. The first questionnaire was demographic information questionnaire (e.g. age, sex, education level, marital status, occupation and duration of care). The second instrument was Zarit Burden Interview (ZBI) questionnaire. ZBI-22 was developed by Zarit, Reever and Bach-Peterson in 1980.(14-16) It is the most prevalent assessment tool for measuring the perceived caregiver burden caused by the care provided by the family caregivers. Answers to the questions of the questionnaire are based on a 5-point scale including never (0), rarely (1), sometimes (2), usually (3) and always (4). The sum of the points obtained by the caregivers determines their caregiver burden. A score of less than 20 is rated as mild burden, 21-40 mild to moderate, 41-60 moderate to severe, and 61-88 represents severe burden. The minimum and maximum score of each person is considered to be between zero and 88 and a higher score will indicate higher caregiver burden and vice versa. The reliability coefficient of the original version (0.71) and its internal consistency (0.91) were measured using retest method and Cronbach's alpha.(14) Also in terms of construct validity, the Zarit burden score was highly correlated with the BAS score (correlation coefficient = 0.73, $p<0.001$) and the GHQ-28 total score (correlation coefficient = 0.62, $p<0.001$).(17) This questionnaire has been prepared by Navidian *et al*. (2008) based on the cultural conditions of Iran and its reliability has been estimated to be 0.94 through using retest method. In addition to content validity, its validity has been confirmed based on its positive and high correlation with Hamilton Anxiety Questionnaire (r = +0.89) and Beck Depression Inventory (r = +0.67).(18,19) The psychometric properties of the ZBI include an acceptable interitem reliability and convergent validity, indicated by a Cronbach's alpha of 0.79 and a correlation coefficient of 0.71 between caregiver's global evaluation and ZBI scores. Test-retest reliability (0.71) and internal consistency (Cronbach's alpha= 0.91) have also been reported.(20-22) In the present study, the reliability of the ZBI was approved by Cronbach's alpha=0.90.

Procedures and statistical analysis

At first, the subjects were divided into intervention and control groups using random method. Before the intervention, the questionnaires were given to the samples. Then the intervention group subjects were educated. The training session was held by two researchers (a male researcher to teach male samples and a female researcher to train female samples) who had sufficient skills with regard to BRT. The educational content of the session included questions and answers about the benefits of relaxation and practical application of the technique. In this session, after explaining how to do the exercises, the caregivers were asked to perform the exercises in the presence of the researcher to ensure their accuracy.. After education, the caregivers performed the exercises independently. They did not receive special attention compared to the control group, in order to avoid more behavioral attention to the intervention group as a confounding factor as much as possible. In this study, patients and caregivers of the control group were not trained.

Benson's relaxation instructions are as follows: The caregivers are asked 1) To be in a comfortable position; 2) Close their eyes slowly; 3) Keep all the muscles of the body from the soles of the feet to the face gradually relax and keep calm; 4) Breathe through the nose and be aware of oneself and take the breath out slowly through the mouth and when the breath comes out, repeat the number one under the lips and breathe comfortably and normally; 5) Do this for 15 minutes and try to relax the muscles, then slowly open the eyes and do not get up for a few minutes; 6) Do not worry whether they have reached a deep level of calm or not, and let the relaxation happen by itself; when disturbing thoughts occur, try to ignore them and be indifferent to them.(23) As understanding happens better through watching, video tape was used to make Benson's relaxation instruction more intuitive. At the end, a copy of the CD together with an educational pamphlet was given to the intervention group. The caregivers of the patients were advised to perform this procedure twice a day for 15 minutes each time. It is important to do this procedure continually.

The procedure was performed by the caregivers for one month. They were followed up in person and by telephone during this period. Necessary follow-up and reinforcement was also done in the form of SMS to ensure that the educational program was followed. The subjects of the control group did not receive any care. The ZBI questionnaire was completed in person again by both control and intervention groups one month after doing Benson's relaxation. The normality of the caregiver burden was checked using the Kolmogorov-Smirnov test. Normality was established.The accumulated data were analyzed by SPSS (version 16.0), using independent T-test, paired t-test, Ancova test, and chi-square. In this study, the significance level was considered at 0.05.

Ethics approval and consent to participate

Ethical approval and permit of access to Mottahari hospital was obtained from Jahrom University of Medical Sciences. This study was approved by the Ethics Committee at Jahrom University of Medical Science (JUMS) with ethical code of [IR.JUMS.REC.1396.101]. The participants were informed and written consent was obtained before their participation in the study. Data confidentiality and anonymity was guaranteed for volunteers participating in the study. All methods were carried out by relevant guidelines and regulations.

Results

Fifty-two caregivers of the hemodialysis patients were divided into intervention (*n*=24) and control (*n*=28) groups (Figure 1). The majority of caregivers in the intervention 19 (79.2%) and control 18 (64.3%) groups were female. 17 patients in the intervention group (70.8%) and 26 in the control group most of the caregivers (92.9%) were married. However there was no significant difference between the groups in terms of demographic characteristics. It suggests that both groups are similar in terms of demographic characteristics (Table 1).

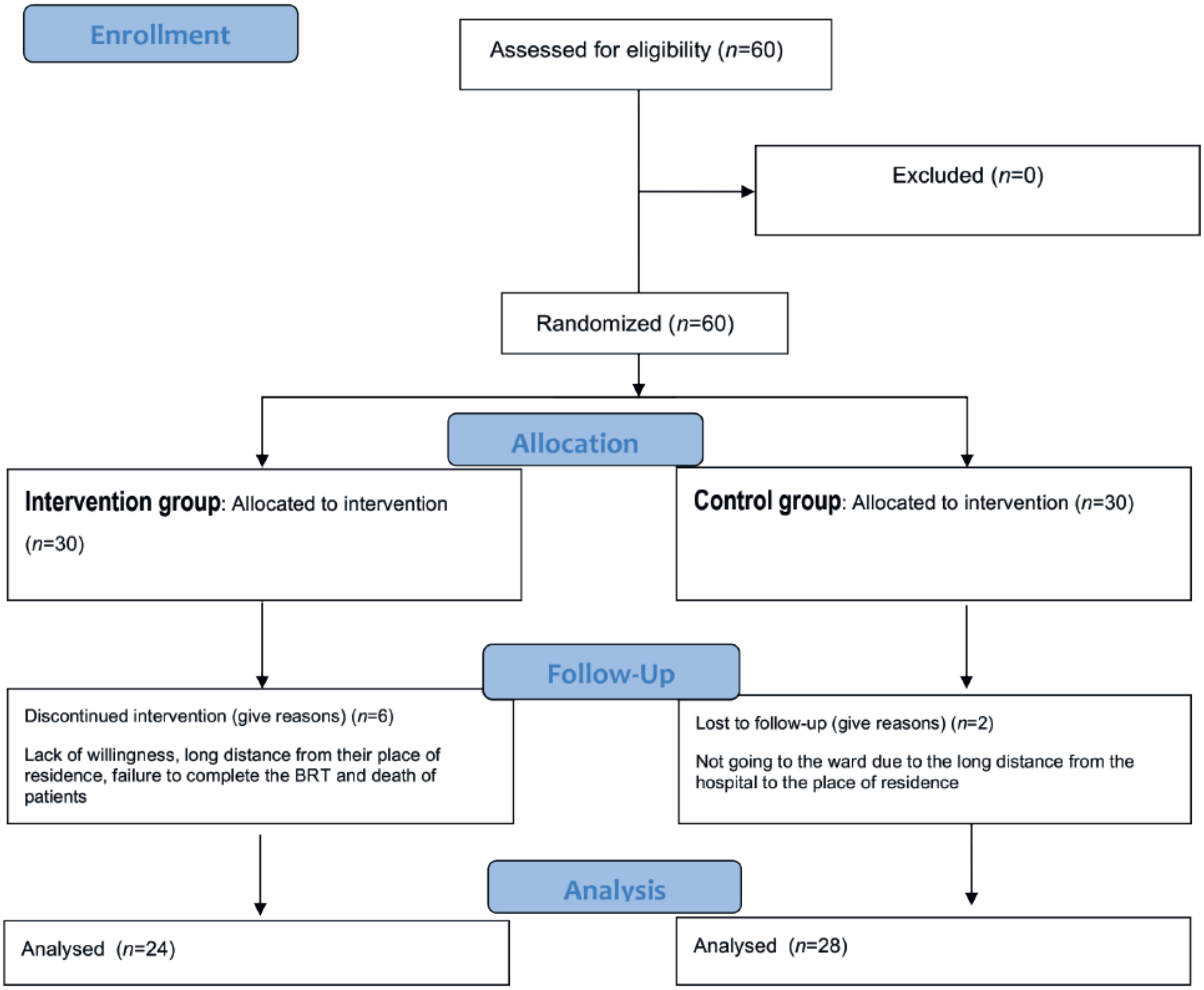


Figure 1. Flow chart of the study

Table 1. Frequency of demographic variables in intervention and control group

Variables	Groups		*p*-value*
	Control group (*n*=28) Frequency (%)	Intervention group (*n*=24) Frequency (%)	
Sex			0.24
Female	18 (64.3)	19 (79.2)	
Male	10 (35.7)	5 (20.8)	
Age (years)			0.73
30 ≤	3 (10.7)	4 (16.7)	
40-31	7 (25.0)	8 (33.3)	
50-41	6 (21.4)	5 (20.8)	
50<	12 (42.9)	7 (29.2)	
Marital status			0.087
Single	2 (7.1)	5 (20.8)	
Married	26 (92.9)	17 (70.8)	
Widow	0 (0.0)	2 (8.3)	
Education			0.62
High school	13 (46.4)	10 (41.7)	
Diploma	10 (35.7)	7 (29.2)	
Above the diploma	5 (17.9)	7 (29.2)	
Occupation			0.62
housewife	17 (60.7)	17 (70.8)	
Employed	7 (25.0)	6 (25.0)	
Retired	3 (10.7)	1 (4.2)	
Other	1 (3.6)	0 (0.0)	
Duration of care			0.79
1-30 days	6 (21.4)	8 (33.3)	
31-60 days	9 (32.1)	6 (25.0)	
61-90 days	2 (7.1)	3 (12.5)	
91-120 days	3 (10.7)	2 (8.3)	
More than 121 days	8 (28.6)	5 (20.8)	

*chi-square test

Based on the results of independent t-test before the intervention, there was no significant difference between the two groups in terms of the mean caregiver burden of caregiving ($p>0.05$).

After the intervention, the mean burden of providing care for hemodialysis patients in the caregivers of the intervention group was significantly lower than the control group ($p<0.001$). The results of paired t-test revealed that in the intervention group, the mean score of caregiver burden after the intervention (14.46±10.91) was significantly lower than before the intervention (38.33±16.94) ($p=0.001$) (Table 2).

Table 2. Comparison of mean caregiver burden in caregivers of hemodialysis patients before and after intervention in the control and intervention groups

	Intervention group (*n*=24) Mean±SD	Control group (*n*=28) Mean±SD	Independent t-test results*
Pre-intervention caregiver burden	38.33±16.94	35.75±19.33	T=-0.51 df= 50 *p*-value=0.61
Post-intervention caregiver burden	14.46±10.91	34.96±15.99	T=5.3 df= 50 *p*-value<0.001
Paired t-test results	T=6.002 df = 23 *p*-value=0.001§	T=-0.207 df = 27 *p*-value=0.84§	

*Independent t-test results; § Paired t-test

Discussion

In general, the study showed that BRT reduces the caregiver burden in caregivers of hemodialysis patients compared to before the intervention. In this study, caregivers of hemodialysis patients who performed BRT reported less caregiver burden than control group. Another study showed that the caregiver burden was high in most caregivers of hemodialysis patients.

Accordingly, given the high caregiver burden, caregivers of hemodialysis patients should have some programs to improve adaptation skills and control the factors affecting the increase of caregiver burden so that they can promote their health.(24) BRT reduces physical discomfort by reducing the activity of the automatic system. Moreover, it improves the ability to adapt and, by creating a feeling of relaxation in the muscles, leads to improved work, social and general activity adequacy and, ultimately, to a positive feeling in the person.(9) This includes mindfulness techniques which affect a wide range of physical and psychological signs and symptoms such as anxiety, pain, depression, mood and self-esteem and thus reduce stress.(25)

This study indicated that after Benson's relaxation, the mean and standard deviation of the caregiver burden score in the intervention and control groups were statistically significant and this method reduced the caregiver burden of the caregivers of the hemodialysis patients. In a study, the BRT was effective in the elderly hemodialysis patients, and reduced anxiety and depression, and improve sleep quality of these patients,(25) which is in line with our study.

Another study similar to the present study in hemodialysis patients showed that BRT can be used as an alternative treatment to reduce depression, anxiety and stress and increase the quality of life of patients undergoing hemodialysis.(26) A study conducted in the emergency care showed that the patients undergoing BRT had a more significant decrease in anxiety score than others.(27) The similarity of the three mentioned studies with the present study can be due to the similarity in the type of intervention. Another reason for the similarity can be the type of variable studied in these studies (anxiety), which is somewhat similar to the type of variable reviewed in this study (caregiver burdens). The findings of a study provided insight into the problems of caregivers of patients undergoing hemodialysis. Patients with ESRD should have regular lifelong dialysis. Both the disease and its treatment (i.e. dialysis) have serious effects on patients and their caregivers. The long-term duties of caregivers in providing daily services to the patients can affect their social, financial and mental health. Initially, these caregivers are very eager to help these patients without receiving any salary; but over time, frustration and fatigue develop and cause serious social and psychological problems in them.(28) Another study showed that after Benson's relaxation, the mean and standard deviation of stress score were significantly different in the intervention and control groups. This study showed a significant reduction in stress after applying Benson's relaxation, while no significant changes were observed in the control group.(23) The results of this study were also in line with the results of the present study. The reason for the similarity of this study with the present study can be due to the similarity in the type of intervention and its effect on the type of variable mentioned (stress) which is similar to the type of variable evaluated in this study (caregiver burden).

In one study, the aim was to compare the effects of relaxation and aromatherapy inhalation on the fatigue of hemodialysis patients. In this clinical trial study, the subjects were classified into three groups of relaxation, aromatherapy and control. In the relaxation group, Benson's relaxation methods were used. In the aromatherapy group, the inhalation of two drops of 5% lavender essence was used and the control group received only regular care measures. The results of this study showed a significant difference in the mean of the changes in fatigue score before and after the intervention between the relaxation and aromatherapy groups, but this difference was not significant in the control group. In reducing the level of fatigue in hemodialysis patients, aromatherapy with lavender essence functioned better than BRT.(29) This finding is not in line with the findings of our study.

The less effect of Benson's relaxation in this study than ours can be possibly due to the simultaneous use of aromatherapy and Benson's relaxation in this intervention. Moreover, this study has been conducted on hemodialysis patients and the study variable has been fatigue. By contrast, our study was conducted on the caregivers of hemodialysis patients and the variable of our study was caregiver burden. In a study that BRT was performed, the results showed that the level of anxiety, depression, well-being and work-related stress, and confidence to teach patients in nurses were not statistically significant. However, nurses reported more confidence in teaching this method to patients.(30) This may be due to the small sample size, which even the study itself suggests that larger studies may show a significant reduction in work-related stress and anxiety of nurses. Additionally, in order to reduce the level of job stress in nurses, other strategies should be employed as well. Another reason for the discrepancy was that the data collection tool in this study was different from our study.

The results of a similar study showed that BRT could be somewhat effective in reducing job stress of midwives.(31) In another study, research findings emphasized the significance of BRT as an alternative which can change oxidative stress markers, thereby reducing physical and mental symptoms.(32) Our findings of the study and other similar studies(8,23,27) show that the use of low-risk, low-cost, and convenience methods and performing them by the caregivers of hemodialysis patients can reduce the caregiver burden problems of these caregivers. These methods can be used in hemodialysis wards for the caregivers of hemodialysis patients as a routine in nursing care and beside the cares provided for the patients.

In the review article of Surani,(12) the eight articles with family-based intervention programs consisting of family-centered interventions, educational interventions, and psychological interventions showed significant results in reducing the burdens of caregivers who take care of hemodialysis patients. The results of this systematic review show that intervention programs could help reduce the burdens of family caregivers when caring for hemodialysis patients.

In a study conducted by Qane,(33) the results showed the effectiveness of supportive educative program on the burden on family caregivers of hemodialysis patients. Since the level of caregiver burden in caregivers of hemodialysis patients is high and these pressures can reduce the level of care for these patients and also endanger the caregiver's physical and mental health. As a result, they need nursing interventions, counseling and follow-up over time. Therefore, in hemodialysis patients, nurses should pay attention to the role of caregivers in the treatment of these patients, and interventions such as education of the patient and his caregiver, counseling, family therapy, and referral to support groups should be considered to reduce caregiving burden, so as to improve the quality of patient care and the physical and mental health of caregivers as hidden patients should be guaranteed, which will reduce the workload of nurses and increase the quality of care for hemodialysis patients. Nursing care needs to include both patients and their caregivers and support them. It is hoped that this study will guide nursing care in this direction.

Limitations and strengths. As the strength of this study, it is one of the few studies that assessed the effect of Benson's relaxation technique on caregiver burden in caregivers of hemodialysis patients. Due to the positive effect of this method can be recommended as a complementary method of caregiver burden reduction. One of the limitations of this study was that the participants were selected from a single center, so the results cannot be generalized to other regions of the country. Another study limitation was that the procedure was performed only in caregivers of hemodialysis patients. It is suggested to be performed in caregivers of other chronic diseases.

Conclusion. Based on the results of this study, BRT can have significant positive effects on reducing the caregiver burden of the caregivers of hemodialysis patients. Caregivers of hemodialysis patients play an important role in providing for these patients and the use of complementary medicine methods such as Benson's relaxation can have positive effects on these people without any complication. Moreover, using these exercises is both cost-effective and simple. Therefore, it is recommended that this method be considered in order to improve the level of psychological health and prevent increased caregiver burden, especially in caregivers of hemodialysis patients and other chronic diseases.

Acknowledgement. The authors express their gratitude to esteemed officials of the hospital, as well as the hemodialysis patients and their caregivers who participated and cooperated in the study.

Fundings. This study was financially supported with the financial support of Jahrom University of Medical Sciences, Jahrom, Iran.

References

1. Menati L, Torabi Y, Andayeshgar B, Khatony A. The Relationship Between Care Burden and Coping Strategies in Caregivers of Hemodialysis Patients in Kermanshah, Iran. Psychol. Res. Behav. Manag. 2020; 13:133-40.
2. Chhetri SK, Baral R. Caregiver Burden among Caregivers of Patient Undergoing Hemodialysis in Tertiary Care Center: A Descriptive Cross-sectional Study. JNMA J. Nepal Med. Assoc. 2020; 58(223):148-52.
3. Cantekin I, Kavurmacı M, Tan M. An analysis of caregiver burden of patients with hemodialysis and peritoneal dialysis. Hemodial Int. 2016; 20(1):94-7.
4. Zhang R, Pu C, Cui X, Zhang N, Li X, Zheng F. Burden in primary family caregivers caring for uremic patients on maintenance peritoneal dialysis. Perit. Dial. Int. 2020; 40(6):556-62.
5. Chan KY, Yip T, Yap DY, Sham MK, Wong YC, Lau VWK, et al. Enhanced psychosocial support for caregiver burden for patients with chronic kidney failure choosing not to be treated by dialysis or transplantation: a pilot randomized controlled trial. Am. J. Kidney Dis. 2016; 67(4):585-92.
6. Ashghali Farahani M, Ghane G, Sydfatemi N, Hagani H. Effect of educational program on the burden of family caregivers of hemodialysis patients. Evid. Based Care. 2016; 6(1):7-18.
7. Mashayekhi F, Pilevarzadeh M, Rafati F. The assessment of caregiver burden in caregivers of hemodialysis patients. Mat. Sociomed. 2015; 27(5):333-36.
8. Heshmatifar n sh, mahdavi a, shegarf nahaee M, Rakhshani M. The effect of Bbenson relaxation technique on depression in patients undergoing hemodialysis. J. Babol Univ. Med. Sci. 2015; 17(8):34-40.
9. Rambod M, Pasyar N, Sharif F, Rafii F, Pourali Mohammadi N. The effect of relaxation technique on physical activity of hemodialysis patients. Iran J. Nurs. 2014; 27(90):22-32. [Persian]
10. Feyzi H, Khaledi PB, Hadadian F, Rezaei M, Ahmadi M. Investigating the effects of Benson's relaxation technique on quality of life among patients receiving. Iran. Crit. Care nurs. 2015; 8(1):13-20
11. Maslakpak MH, Torabi M, Radfar M, Alinejad V. The effect of psycho-educational intervention on the caregiver burden among caregivers of hemodialysis patients. J. Res. Developm. Nurs. Midwifery. 2019; 16(1):13_24.
12. Surani V. The impact of family intervention programs on the caregiver burden of hemodialysis patients. Kontakt.2021; 23(2):138-45.
13. Ata EE, Doğan S. The effect of a brief cognitive behavioural stress management programme on mental status, coping with stress attitude and caregiver burden while caring for schizophrenic patients. Arch. Psychiatri Nursi. 2018; 32(1):112-9.
14. Hébert R, Bravo G, Préville M. Reliability, validity and reference values of the Zarit Burden Interview for assessing informal caregivers of community-dwelling older persons with dementia. Can. Aging. 2000; 19(4):494-507.
15. Gratão ACM, Brigola AG, Ottaviani AC, Luchesi BM, Souza ÉN, Rossetti ES, et al. Brief version of Zarit Burden Interview (ZBI) for burden assessment in older caregivers. Dement. Neuropsychol. 2019; 13:122-9.
16. Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: correlates of feelings of burden. Gerontologist. 1980; 20(6):649-55.
17. Seng BK LN, Ng WY, Lim J, Chionh HL, Dip A , et al. Validity and reliability of the Zarit Burden Interview in assessing caregiving burden. Ann. Acad. Med. Singapore. 2010; 39:758-63.
18. Navidian A, Bahari F. Burden experienced by family caregivers of patients with mental disorders. Pak. J. Psychol. Res. 2008:19-28.
19. Navidian A PS, Yazdani M. The Effectiveness of Family Training on Family Caregivers of Inpatients with Mental Disorders. Iran. J. Psychiatry Clin. Psychol. 2010; 16(2):99-106. [Persian]
20. Zarit SH, Todd PA, Zarit JM. Subjective burden of husbands and wives of caregivers: a longitudinal study. Gerotologist. 1986; 26:260- 266.
21. Lopelowics A, Zarate R, Smith VG, Mintz J Liberman RP. Disease management in Latinos with Schizophrenia: A family-assisted skills training approach. Schizophr. Bull. 2003; 29(2):211.

22. Smith A, Schwirian PM. The relationship between caregiver burden and TBI survivor's cognition and functional ability after discharge. Rehabil. Nurs. 1998; 23(5):252-7.
23. Elali ES ma, Jannati Y, Yazdani J, Setareh J. Effect of Benson Relaxation Response on Stress Among in Hemodialysis Patients. J. Mazandaran Univ. Med. Sci. 2012; 22(91):61-8. [Persian]
24. Abbasi A, Asayesh H, Rahmani H, Shariati A, Hosseini S, Rouhi G. The burden on cargivers from hemodialysis patients and related factors. J. Res. Dev. Nurs. Midwifery. 2011; 8(1):26-3. [Persian]
25. Elsayed EBM, Radwan EHM, Elashri N, El-Gilany H. The effect of Benson's relaxation technique on anxiety, depression and sleep quality of elderly patients undergoing hemodialysis. Int. J. Nurs. Didactics. 2019; 9(02):23-31.
26. Pangaribuan SM, Purborini N, Chang H-J. Effect of Benson's Relaxation Technique on Mental Health and Quality of Life in Hemodialysis Patients: A Literature Review. Indian J. Public Health Res. Develop. 2020;11(5):827-31.
27. Ibrahim A, Koyuncu G, Koyuncu N, Suzer NE, Cakir OD, Karcioglu O. The effect of Benson relaxation method on anxiety in the emergency care. Medicine. 2019;98(21):e15452.
28. Shah HBU, Atif I, Rashid F, Babar MW, Arshad F, Qamar W, et al. Assessment of caregiver burden of patients receiving dialysis treatment in Rawalpindi. J. Pak. Med. Assoc. 2017; 67(10):1498-501.
29. Hassanzadeh M, Kiani F, Bouya S, Zarei M. Comparing the effects of relaxation technique and inhalation aromatherapy on fatigue in patients undergoing hemodialysis. Complement. Ther Clin Pract. 2018 ;31:210-4.
30. Calder Calisi C. The effects of the relaxation response on nurses' level of anxiety, depression, well-being, work-related stress, and confidence to teach patients. J. Holist. Nurs. 2017; 35(4):318-27.
31. Jourabchi Z, Satari E, Mafi M, Ranjkesh F. Effects of Benson's relaxation technique on occupational stress in midwives. Nursing2020. 2020; 50(9):64-8.
32. Olia JBH, Zinalpoor S, Sakhaei S, Sadagheyani HE, Motaarefi H. The Influence of Benson Relaxation on Oxidative Stress Marker of Premenstrual Syndrome in Students of Khoy University of Medical Sciences. Open Access Maced. J. Med. Sci. 2019; 7(23):4149-54.
33. Ghane G, Ashghali Farahani M, Seyedfatemi N. Effectiveness of supportive educative program on the burden in family caregivers of hemodialysis patients. J. Urmia Nurs. Midwifery Fac. 2017; 14(10):885-95.

Experience of Caring as Source of Abductive Reasoning in Nursing: a Pragmatic Vision

Reflection article

Virginia Inés Soto Lesmes[1,4]
https://orcid.org/0000-0002-3296-8812
Jaime Alberto Ramírez Niño[2]
https://orcid.org/0000-0001-6459-5427
Luz Stella Bueno-Robles[3,4]
https://orcid.org/ 0000-0002-9842-536X

Experience of Caring as Source of Abductive Reasoning in Nursing: a Pragmatic Vision

Abstract

The aim of this reflection article consists in proposing a methodology that makes visible the epistemic practice through abductive reasoning for the generation of knowledge from an experience of caring. For such, the work describes the connections between the science of nursing and inter-modernism, develops the idea of the nursing practice as source of knowledge, and defines the components of abductive reasoning for the practice. Finally, the work presents an academic exercise developed within the framework of the assignment *Evaluation of the theory for research and practice* in the PhD program in nursing at Universidad Nacional de Colombia on how a theory was developed from a situation of care and its scientific usefulness upon generating in patients a sense of fullness in their health and in nursing professionals, satisfaction with their work.

1 Nurse, PhD. Full Professor. Email: visotol@unal.edu.co
2 Nurse, Master's. Professor, Direction of Nursing, Universidad ECCI. Email: jramirezni@ecci.edu.co
3 Nurse, PhD. Associate Professor, Faculty of Nursing. "Universidad Nacional de Colombia" - at Bogotá. Email: lsbuenor@unal.edu.co
4 "Universidad Nacional de Colombia" - at Bogotá – Faculty of Nursing

Conflicts of interest: none

Received: 16 May 2022.

Approved: 5 October, 2022.

How to cite this article: Soto VI, Ramírez JA, Bueno-Robles LS. Experience of Caring as Source of Abductive Reasoning in Nursing: a Pragmatic Vision. Invest. Educ. Enferm. 2022; 40(3):e07.

DOI: https://doi.org/10.17533/udea.iee.v40n3e07.

Descriptors: nursing care; philosophy nursing; clinical reasoning; nursing theory; nursing practice.

Experiencia de cuidado como fuente del razonamiento abductivo en enfermería: una mirada pragmática

Resumen

El objetivo del presente artículo de reflexión consiste en proponer una metodología que visibilice la práctica epistémica mediante el razonamiento abductivo para la generación de conocimiento a partir de una experiencia de cuidado. Para ello, se describen las conexiones entre la ciencia de enfermería y el intermodernismo, se desarrolla la idea de la práctica de enfermería como fuente de conocimiento y se definen los componentes del razonamiento abductivo para la práctica. Finalmente, se presenta un ejercicio académico desarrollado en el marco de la asignatura *Evaluación de la teoría para la investigación y la práctica* del programa de Doctorado en Enfermería de la Universidad Nacional de Colombia sobre cómo se desarrolló una teoría a partir de una situación de cuidado y su utilidad científica al generar en el paciente una sensación de plenitud en su salud y en el profesional de enfermería, satisfacción con su labor.

Descriptores: cuidado de enfermería; filosofía en enfermería; razonamiento clínico; teoría de enfermería; enfermería práctica.

A experiência do cuidado como fonte do raciocínio abdutivo em enfermagem: um olhar pragmático

Resumo

O objetivo deste artigo de reflexão é propor uma metodologia que torne visível a prática epistêmica por meio do raciocínio abdutivo para a geração de conhecimento a partir de uma experiência de cuidado. Para tanto, descrevem-se as conexões entre a ciência da enfermagem e o intermodernismo, desenvolve-se a ideia da prática de enfermagem como fonte de conhecimento e define-se os componentes do raciocínio abdutivo para a prática. Por fim, apresenta-se um exercício acadêmico desenvolvido no âmbito da disciplina *Avaliação da teoria para pesquisa e prática* do programa de Doutorado em Enfermagem da Universidade Nacional da Colômbia sobre como se desenvolveu uma teoria a partir de uma situação de cuidado e sua utilidade científica gerando no paciente uma sensação de plenitude em sua saúde e no profissional de enfermagem, satisfação com seu trabalho

Descritores: cuidados de enfermagem; filosofia em enfermagem; raciocínio clínico; teoría de enfermagem; enfermagen práctica.

Virginia Inés Soto Lesmes • Jaime Alberto Ramírez Niño • Luz Stella Bueno-Robles

Introduction

It is acknowledged that the level of jurisdiction of a profession on the respective practice is related with the presence of abstract thought and use of theories in the practice.(1) Although nursing is recognized as the profession of care in the experience of human health, the jurisdiction over its own practice is limited.(1,2) Fawcett J *et al*.,(3) recognize that, without its own theoretical and conceptual knowledge, the nursing practice fails to be at the forefront of the discipline because it does not comply integrally with the mission of satisfying the demands de health care de las personas. In this sense, Reed insists on the need to demonstrate that a theory can emerge from a specific situation in nursing care.(4) Frequently, nursing professionals act according to their best judgement, establishing simultaneous connections between their profound observations and what patients themselves reveal based on existing theories to explain an experience of caring, that is, epistemic practice.(4-8)

Nursing science and inter-modernism

Inter-modernism permits expanding the view of the world between modern and postmodern postures because it does not abandon the useful categories of science, but rather creates alternatives to think a philosophy that facilitates the development of nursing knowledge through the care practice. This perspective promotes an epistemology that associates science with the practice to create knowledge, which is developed, above all, in pragmatic and modifiable manner, given that upon reflecting on the nursing processes that compromise the population's wellbeing, it is found both experience and doing.(5) In turn, the science of nursing is defined as the systematic investigation of health and healing processes between humans and their environment, so that it integrates diverse sources of knowledge, like ethics, science, and the nursing practice.(9) Thus, the practice influences positively on the development of knowledge, not only in the context of discovery, in which nursing professionals and scientists are inspired and formulate theoretical ideas to study a problem; but also in the context of justification, epistemic area that permits nursing professionals and scientists to systematically examine, test, and refine their theories.(9) This configuration entails theories requiring sufficient empirical heritage and which, in turn, are useful from scientific evidence for nursing professionals, considered *situated connoisseurs.*(10)

Pragmatism, abductive reasoning, and nursing

Pragmatism is not concerned with discovering or demonstrating absolute truths, instead, it is interested in how actions create possibilities that explain best the problems of human daily life. Experiences are part of reality, but it has the potential to change and be influenced by the context upon demonstrating certain degree of utility for science and society.(11) Because nursing is of pragmatic nature, it could be stated that the development of this discipline is also pragmatic. In other words, the nursing setting transcends from a context of theoretical application to one of generation of knowledge.(4) The nursing practice is an essential and inexhaustible source of critical judgment; so, by observing surprising phenomena, it is possible emerge from pre-established frameworks. In effect, thus, new ways are discovered of analyzing phenomena characteristic of the discipline and conforming an abductive path for the construction of knowledge. (4,12)

Abductive reasoning is a form of creative inference and an explicative method, which implies not only the integration, but also the argumentation of ideas, whose purpose consists in constructing new knowledge from progressive comprehension of how truth can be determined.(13,14) Assimilating abductive reasoning to the nursing practice is a recourse that requires being studied to propose initiatives about how the best strategies that demonstrate the usefulness of care in practice should work.(13) The purpose of this strategy lies in solving the needs of the subject of care and exercise with greater solvency the discipline itself. Likewise, the theoretical thought of nursing is based on observations and profound relations with the subjects of care, articulated with evidence available from the disciplinary theory, although generating hypotheses supported on the practice without a pre-existing theoretical support.(4,5) So it is in practice that the usefulness of the abductive process transcends and permits defining the best care for the patient, upon obtaining broader and deeper understanding of the nursing care inquiry, which is validated simultaneously in its practice, with some connections of the existing theory.(4,15)

The nursing practice is not only direct source of knowledge, but is also anchored to theoretical thought through diverse forms of reasoning, which can be deductive, inductive, or abductive; the last is the focus of interest for our analysis.(4,5)

From abductive reasoning, nursing professionals integrate observation, interaction with patients, theory, experience, and patterns of existing knowledge to explain an care experience.(6-8) Similarly, it proposes and evaluates healing actions in supported manner, producing knowledge for action.(12) From this epistemological notion of nursing care, the aim of this article consists in proposing a methodology that makes visible its epistemic practice through abductive reasoning for the generation of knowledge from a care experience.

Components of abductive reasoning for the nursing practice

Abductive reasoning is understood as the faculty of examining a set of facts and permitting for those events to imply a theory, for which is considered accumulated experience, given that the theory cannot be generated without a prior context or a surprising nursing phenomenon.(14) From the approaches of the classics Peirce and Dewey, referenced by Deering(11) and Moscoso(14) allowed to build the components of abductive reasoning so that they could be applied and characterized to nursing practice because they can occur simultaneously or in different moments; however, it is necessary that all occur in the same situation. These are defined briefly in the following:

Attitude. The nurse applies in a care situation values and behavioral norms based on knowledge; besides, establishing a mental and physical commitment with the subjects of care.(4)

Observation. It is the means by which the nurse observes closely existing, non-routine problems of the practice and gathers data on significant and unexplainable details in a given care situation. From this situation, and interpretation emerges.(4,5)

Interpretation. This phase appeals to the *comprehensive interpretation* method, according to which in the nursing practice it is necessary «to really include the people involved in the problem situation in question and work to construct a narrative that gives meaning to the experience and proposes ways of improving the situation».(11)

Prior knowledge. The nurse applies nursing knowledge to a specific care situation, namely: metaparadigms, visions of the world, concepts and theories specific of the discipline, as well as the knowledge of the human being in its biological, psychological, and social dimensions. This is modified as the nurse-patient relation is strengthened.(2-4)

Clinical skills and abilities. This component permits obtaining one's own clinical judgement and jurisdiction in the decisions in the nursing practice. Likewise, it implies not only the development of psychomotor and interpersonal abilities, but also a mental and physical commitment with technology, with human beings, and with other professionals in the practice setting.(4) Skills and abilities are manifested whenever a specific care situation takes place.

Construction of initial hypotheses. This phase postulates a potential explanation that emerges spontaneously when weighing a phenomenon of interest for the nurse under a concrete circumstance.(5,14)

Construction of explicative hypotheses. With this component, it is possible to extract the likely consequences derived from the care action and, from the initial hypotheses, predictions are proposed, which are taken to action and are compared with the results of the experiments. Thus, the hypotheses that obtain the best result will be preferred over the alternative ones.(14)

Construction of a new theory. Initially, a path was used that guided the strategy to organize the knowledge constructed.(1) The theory is created the moment the nursing intervention is conducted through a complex process —but still insufficiently understood— of reflection on said intervention.(5) Upon evidencing said process and the epistemological analysis of the act of caring, the experience acquires scientific nature and, hence, enters the terrain of theory.

Result. The result on health is a component that indicates the level of success achieved in the patient, that it, checks to see if what was intended has been achieved with the care interventions during the care process.(16) It also corroborates that the new theory constructed permits strengthening the disciplinary development of nursing.(3)

Experience of caring

To analyze a given experience of caring from abductive reasoning, initially, it is fitting to recreate a real and significant fact that proceeds from said experience through a narrative that accounts for the interactions and actions present in it. In this sense, the following transcribes a story reconstructed during the second semester of 2019, which shares a care interaction within the context of an intensive care unit in a Colombian health institution.

Narrative: *The window toward the language of the heart*

«The end-of-year festivities welcomed us in that chaotic place called ICU. Mr. Aries and I faced spiritual loneliness: he from his health situation —impaired physical mobility, body entrapment secondary to degenerative and progressive hell (*denominated amyotrophic lateral sclerosis*), faces of sadness, tears, always lost gaze and insomnia—, aggravated by family abandonment; *and I, far from my family and feeling as my own Mr. Aries's loneliness*. His frail, weak and immobile body evidenced a significant deterioration in its domain of perception and cognition, with imminent risk of cessation of spontaneous breathing and cardiovascular activity, which required my full attention.

A meeting of gazes was enough to establish an extrasensory connection and touch emotional fibers that immediately generated an eruption of feelings. We were two souls in one, who through silence called each other to keep each other company within a storm of silent pleads that sought to link two experiences. His increased heartbeat and breathing told me something unrelated to his clinical condition. Little by little, that connection merged two experiences, as if each opened a window from their heart to allow the other to enter and elucidate the essence of two beings as if they were one. A horizon began to be drawn in the only window of that cubicle, where the gaze of Mr. Aries and mine converged; it was there that I could feel what two trapped souls needed.

He needed me to be there, so I dragged a chair over that was nearby and sat by his side —while I remembered that at some point in my life, I had done it with a loved one who was sick and that the only thing he wanted at that moment was my company—. Silence encapsulated that instant and harmonized a moment in which two beings with distinct sufferings joined their gaze towards a new dawn, a new beginning, we left behind the hardships that overwhelmed them and traced new goals towards a comforting and encouraging future. So, we felt that, after that deep reflection, we needed to happily invigorate that moment, so it occurred to me to look in my desk for an old clock-radio that on many occasions entertained me even during the most complex shifts; I placed it on Mr. Aries' table and turned it on.

It was then that each note and melody stimulated emotional vibrations; when silent laughter and bizarre dances flowed in a *spiritual revelry* in which the only guests were Mr. Aries and myself. We drank the nectar of absurd happiness, which little by little intoxicated our hearts; we were celebrating, more than the end of the year, the meeting of two beings and the fusion of two souls in a feeling of friendship that radiated enough energy to adorn that time in the intensive care unit.

Those few minutes shook my perspective on nursing care. So, I felt that said connection had a meaning for me and for Mr. Aries because there I was able to transition from a clinical nursing focused on hemodynamic, neurological and respiratory monitoring; on the administration of medications and on invasive procedures, to nursing of the soul and the spirit, whose unintelligible languages generated such energy that drove care in unimaginable ways. This made that experience —perhaps common for any other— to mean a cognitive and spiritual transcendence for Mr. Aries and for me. Sometimes, when I share time with my family, I remember Mr. Aries and cherish each minute; well, I understand that a material transaction is not necessary to help someone when feelings are transmitted with the heart even in life's most simple actions ».

Table 1, in response to that proposed by Reed(4) on the imperative of innovating in tools that demonstrate how knowledge is produced for the practice, presents the components of abductive reasoning that are implicit and explicit in the narrative. Furthermore, these components evidence that it is possible to generate useful theories to solve the patient's health needs.

Table 1. Components of abductive reasoning from the narrative: *The window toward the language of the heart*

Component	Evidence from the narrative
Attitude	«The end-of-year festivities welcomed us in that chaotic place called ICU. Mr. Aries and I faced spiritual loneliness: he from his health situation […] aggravated by family abandonment; and I, far from my family and feeling as my own Mr. Aries's loneliness […]».
Observation	«[…] —impaired physical mobility, body entrapment secondary to degenerative and progressive hell (denominated *amyotrophic lateral sclerosis*), faces of sadness, tears, always lost gaze and insomnia—, […]». «[…] His frail, weak and immobile body evidenced a significant deterioration in its domain of perception and cognition, with imminent risk of cessation of spontaneous breathing and cardiovascular activity, which required my full attention […]».
Interpretation	«A meeting of gazes was enough to establish an extrasensory connection and touch emotional fibers that immediately generated an eruption of feelings. We were two souls in one, who through silence called each other to keep each other company within a storm of silent pleads that sought to link two experiences […]».
Prior knowledge The nursing professional enters the care situation from an interactive-integrative perspective. The narrative reflects not only the patient's physical condition, but also the feelings, emotions, and how Mr. Aries' health condition was permeated by the context: *family abandonment* and *the chaos in the ICU*. The professional's expertise permits their considering that through the nurse-patient relation they can transcend to a unitary-transformative vision.	**Metaparadigm** *Human being*: «[…] —impaired physical mobility, body entrapment secondary to degenerative and progressive hell (*denominated amyotrophic lateral sclerosis*), faces of sadness, tears, always lost gaze and insomnia— […]». «[…] His frail, weak and immobile body evidenced a significant deterioration in its domain of perception and cognition, with imminent risk of cessation of spontaneous breathing and cardiovascular activity, which required my full attention […]». *Environment*: A health situation aggravated by the family abandonment and chaos in the ICU. *Health*: Initially, the physical, mental, and emotional health condition of Mr. Aries was critical, given that it required satisfying the needs his body demanded. But, throughout the care interaction, this concept evolves toward a sense of fullness and wellbeing of both: «It was then that each note and melody stimulated emotional vibrations; when silent laughter and bizarre dances flowed in a *spiritual revelry* in which the only guests were Mr. Aries and myself. We drank the nectar of absurd happiness, which little by little intoxicated our hearts; we were celebrating, more than the end of the year, the meeting of two beings and the fusion of two souls in a feeling of friendship, radiating enough energy to adorn that time in the intensive care unit» *Nursing*: The patient's needs are identified; creative, sensitive, unique, unrepeatable, and transcendent care is provided toward the wellbeing of the nurse-patient relation: «He needed me to be there, so I dragged a chair over that was nearby and sat by his side […], we left behind the hardships that overwhelmed them and traced new goals towards a comforting and encouraging future. So, we felt that, after that deep reflection, we needed to happily invigorate that moment, so it occurred to me to look in my desk for an old clock-radio that on many occasions entertained me even during the most complex shifts, I placed it on Mr. Aries' table and turned it on. It was then that each note and melody stimulated emotional vibrations; when silent laughter and bizarre dances flowed in a *spiritual revelry* in which the only guests were Mr. Aries and myself.

Table 1. Components of abductive reasoning from the narrative: *The window toward the language of the heart* (Cont.)

Component	Evidence from the narrative
Construction of initial hypothesis	In the care relation, nurses apply knowledge from the support of nursing theories, clinical experience in managing human beings in critical health situation, and their own history to provide direct care to a person with progressive physical deterioration and family abandonment.
Construction of explicative hypothesis	• The nurse notes that the progressive physical deterioration of the human being to whom care is being provided leads him to feeling trapped in his body; a feeling *aggravated* by the loneliness caused by *family abandonment*. • The limitation of the human being subject of care to communicate verbally induces to a rapid and creative interaction by the nurse with him through the gazes that facilitate care actions. • The exchange of gazes loaded with emotions generates mutual feelings to recognize that both experienced loneliness and suffering, although in different ways. • The gazes transcend from the physical to the spiritual to connect both mutually and permit the *Dasein* or *being there* and *helping the other*. Thus, it is possible to grow through the interaction and achieve wellbeing. • Unintelligible languages create an energy that drives the nurse to provide care in an unimaginable way. • The nurse intentionally accompanies the subject worthy of care by sitting next to him, while both maintain the gazes and listen to each other in silence. • Knowledge on the effect of music as a neurological stimulus is a means that allows the nurse to be emotionally present in the other. • The interaction transforms the nurse and the subject worthy of care in a *spiritual conjunction* that transcend into wellbeing.

Source: Elaborated by the authors from analyses of the nursing situation.

Path to organize knowledge

This exercise adopts the scheme of a path for the production of nursing knowledge that contributes to the epistemological development for the discipline (Figure 1). It is based on a knowledge creation process that, although not definitive, represents the natural, the dynamic and, at times, the disorganized aspects of nursing practice processes, science and theorization. The primary objective of this spiral path is to promote both thought and theory among nursing professionals from the following question: what does the development process of what has been called nursing knowledge consist of? (1)

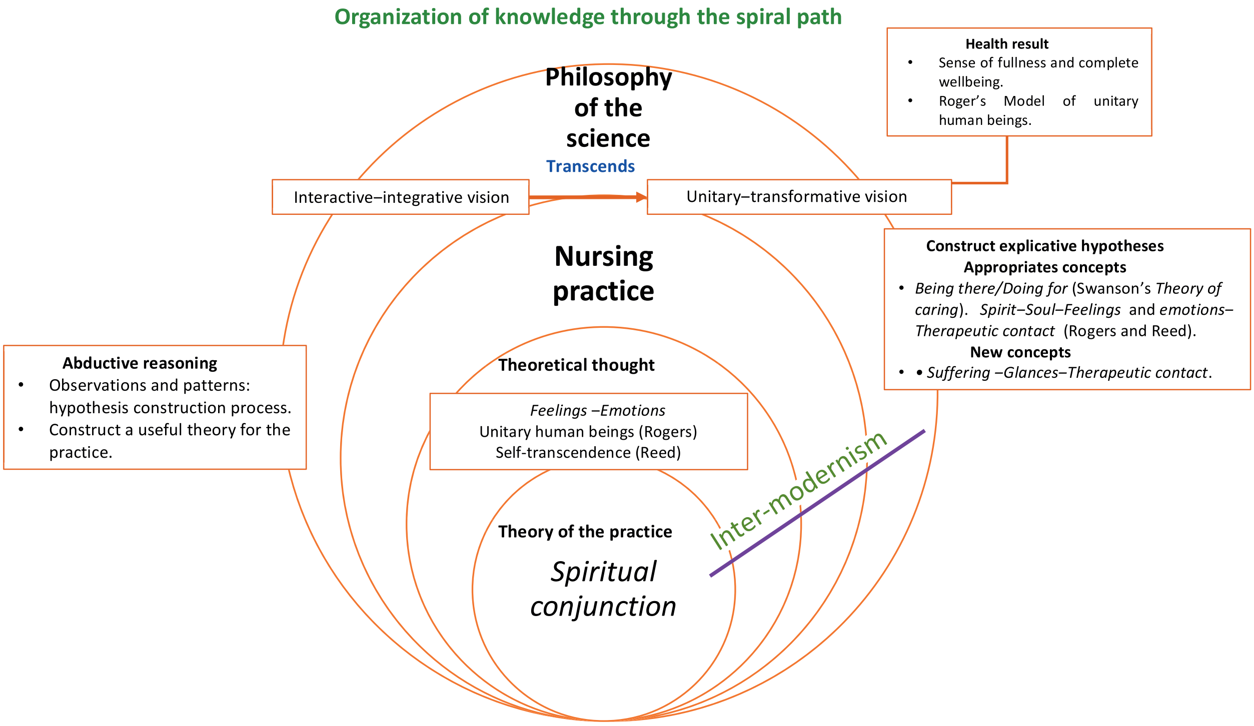


Figure 1. Path for the new *Spiritual conjunction* theory of the practice

Source: Elaborated by the authors from Reed's presumptions.(1)

Construction of the theory

The process of knowledge creation, quite useful for the practice, describes and explains the theoretical concepts that emerged during the care situation object of study herein. These concepts generated the *Spiritual conjunction* theory (Table 2).

Table 2. Concepts of the *Spiritual conjunction* theory

Concept	Theoretical definition	Representation in the nursing situation
Spiritual conjunction (core concept) Proposition: the expressions of the immaterial component of the human being are triggered by shared suffering and are exposed through portal of the gazes in which the souls of the nurse and the subject of care reach the conjunction, which allows the free flow of feelings and emotions permeated by melodies, presences and intangible contacts.	It is the fusion of human essences (soul), where needs are satisfied that go beyond the physical and the emotional, which achieves a mutual energetic balance connoted by a feeling of fullness —definition derived from the narrative object of study—.	«A meeting of gazes was enough to establish an extrasensory connection and touch emotional fibers that immediately generated an eruption of feelings. We were two souls in one, who through silence called each other to keep each other company within a storm of silent pleads that sought to link two experiences [...]».
Visions (secondary concept)	These are the means to express the human essence —definition derived from the narrative object of study—.	«Little by little, that connection merged two experiences, as if each opened a window from their heart to allow the other to enter and elucidate the essence of two beings as if they were one.».
Soul (secondary concept)	It is the human being's essential energetic field—definition derived from Roger's *Conceptual model of unitary human beings*—.	«[...] that connection merged two experiences [...]».
Feelings and emotions (secondary concept)	Has to do with the human being's energetic fluctuations —definition derived from Reed's *Theory of self-transcendence*, and from the narrative object of study—.	«[...] eruption of feelings [...] a storm of muted pleads [...]».
Being there/Doing for (secondary concept)	Recognized as the intangible presence that implies both verbal and non-verbal messages and simultaneously enables a mutual therapeutic action —definition derived from Swanson's *Theory of caring* and from the nursing situation object of study—.	«I dragged over a chair that was nearby and sat by his side [...]. Silence encapsulated that instant and harmonized a moment in which two beings with distinct sufferings joined their gaze towards a new dawn, a new beginning, we left behind the hardships that overwhelmed them and traced new goals towards a comforting and encouraging future».
Therapeutic contact (concept or mediating factor)	Refers to any contact between the nursing professional and the subject of care, whose meaning transcends physical contact and whose purpose is to achieve mutual spiritual growth —definition derived from Roger's *conceptual model of unitary human beings*, Reed's *Theory of self-transcendence*, and from the narrative object of study—.	«A meeting of gazes was enough to establish an extrasensory connection and touch emotional fibers that immediately generated an eruption of feelings. We were two souls in one, who through silence called each other to keep each other company within a storm of silent pleads that sought to link two experiences».

Concept	Theoretical definition	Representation in the nursing situation
Melody (concept or mediating factor)	It is the environment based on the dispersion of sound waves that contributes to a therapeutic contact —definition derived from the narrative object of study and from Reed's *Theory of self-transcendence*—.	«[…] so, it occurred to me to look in my desk for an old clock radio that on many occasions entertained even during the most complex shifts, I placed it on Mr. Aries' table and turned it on […]». Mr. Aries and I faced spiritual loneliness: he from his health situation —impaired physical mobility, body entrapment secondary to degenerative and progressive hell (*denominated amyotrophic lateral sclerosis*), faces of sadness, tears, always lost gaze and insomnia—, aggravated by family abandonment; and I, far from my family and feeling as my own Mr. Aries's loneliness.
Suffering (triggering or initial concept)	Considered as an emotional state that transcends the physical and emotional ailment caused by their health situation and family abandonment —definition derived from the narrative object of study—.	«Mr. Aries and I faced spiritual loneliness: he from his health situation —impaired physical mobility, body entrapment secondary to degenerative and progressive hell (*denominated amyotrophic lateral sclerosis*), faces of sadness, tears, always lost gaze and insomnia—, aggravated by family abandonment; and I, far from my family and feeling as my own Mr. Aries's loneliness».

Source: Elaborated by the authors from analyses of the nursing situation.

The concepts for action, in terms of the nursing practice according to the nursing situation analyzed to achieve fullness in health, were *Visions*; *Soul*; *Feelings and emotions*; *Dasein* or *Being there* and *Doing for*.(17,18) Likewise, two mediating factors emerged, namely: *Melody and Therapeutic contact*. From the identification of these components, the scheme was established in which the following two factors prevail: *Absence of hierarchy* and *Presence of simultaneity*, whose purpose consisted in constructing the theory so that it explained the reality experienced from a unitary-transformative vision (Figure 2).

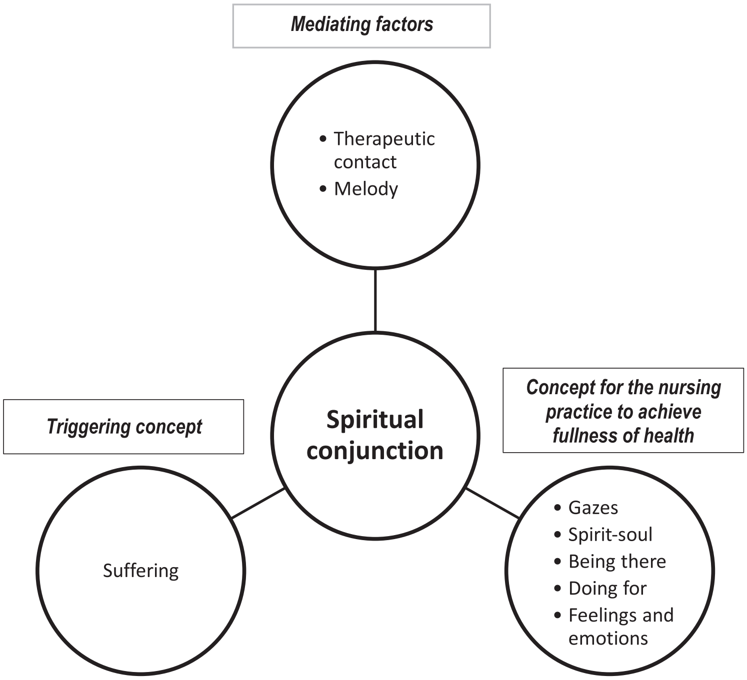


Figure 2. Spiritual conjunction theory of the practice

Source: Elaborated by the authors from analyses of the nursing situation

Discussion

Karlsen *et al*.,(13) approached abductive reasoning as a sort of *starting point* for the research process in the following four steps: preconception of the phenomenon and construction of preliminary hypotheses; empirical confirmation; hypothetical evaluation; and construction of the theory, which can contribute new knowledge to the nursing practice. Nevertheless, this proposal seeks to approach abductive reasoning from a practical experience of care in everyday life, which in addition to the steps proposed for research, also includes in its components the attitudinal, capacity for observation, clinical skills and abilities, and report of health results. Of course, the new theory constructed is not generalizable; it is only valid to solve the health needs of the subject of care: Mr. Aries, in this specific situation.

Conclusion. Each experience of caring is not only complex, but also unique and unrepeatable, given the nature of the interaction between the nursing professional and patient, which emerges in a particular context and influences on the situation. However, sometimes this complexity of the practice is not explained or solved with the knowledge constructed until now by nursing, that is, with the theories available.

Presenting this academic exercise through an experience of caring constitutes a methodological proposal to construct useful theories and make the practice visible through abductive reasoning. It will facilitate, on one part, the use of theoretical thought in concrete scenarios and, moreover, tools to teach it to nursing students to enhance the quality of care. It is necessary to apply this proposal in the different care environments to nourish its validity.

References

1. Reed PG. The spiral path of nursing knowledge [Internet]. In: Reed PG, Shearer NB (Eds.). Nursing knowledge and theory innovation: advancing the science of practice (2nd ed.). New York: Springer Publishing Company; 2017 [cited 28 Feb. 2022]. pp. 1-19. Available from: DOI: https://doi.org/10.1891/9780826149923.0001
2. Newman MA, Smith MC, Dexheimer M, Jones D. The focus of the discipline revisited. Adv. Nurs. Sci. 2008; 31(1):e16-e27.
3. Fawcett J, Desanto-Madeya S. Contemporary nursing knowledge: analysis and evaluation of nursing models and theories (3rd ed.). Philadelphia, Pennsylvania: FA. Davis Company; 2013.
4. Reed PG. The epistemic dignity of knowledge developed through nursing practice. Nurs. Sci. Q. 2021; 34(1):39-44.
5. Reed PG. A philosophy of nursing science and practice: intermodernism. In: Reed PG, Shearer, NB. Nursing knowledge and theory innovation: advancing the science of practice (2nd ed.) [Internet]. New York: Springer Publishing Company; 2017 [cited: 8 Mar. 2022]. pp. 21-46. Available from: DOI: https://doi.org/10.1891/9780826149923.0002
6. Escobar-Castellanos B, Sanhueza-Alvarado O. Patrones de conocimiento de Carper y expresión en el cuidado de enfermería: estudio de revisión. Enfermería (Montevideo). 2018; 7(1):27-42.
7. Blaine B, Dillard-Wright J, Hopkins-Walsh J, Littzen CO, Vo T. Patterns of knowing and being in the COVIDicene: an epistemological and ontological reckoning for posthumans. Adv. Nurs. Sci. 2022; 45(1):3-21.
8. Chinn PL, Kramer MK. Knowledge development in nursing: theory and process (9th ed.). St. Louis, Missouri: Elsevier Mosby; 2015.
9. Reed PG. Standpoint epistemology and nursing science. Nurs. Sci. Q. 2022; 35(1):41-5.
10. Reed P. Moving on: from metaparadigm to midparadigm for knowledge development. Nurs. Sci. Q. 2020; 33(1):38-40.
11. Deering K, Williams J, Stayner K, Pawson C. Giving a voice to patient experience through the insights of pragmatism. Nurs. Philos. 2021; 22(1):e12329.
12. Reed PG. A paradigm for the production of practice-based knowledge: philosophical and practical considerations. In: Reed PG, Shearer, NB. Nursing knowledge and theory innovation: advancing the science of practice (2nd ed.) [Internet]. New York: Springer Publishing Company; 2017 [cited: 8 Mar. 2022]. pp. 199-214. Available from: DOI: https://doi.org/10.1891/9780826149923.0013
13. Karlsen B, Hillestad TM, Dysvik E. Abductive reasoning in nursing: challenges and possibilities. Nurs. Inq. 2021; 28(1):e12374.
14. Moscoso JN. Razonamiento abductivo: una contribución a la creación del conocimiento en educación. Cad. Pesqui. 2019; 49(171):309-28.
15. Råholm MB. Abductive reasoning and the formation of scientific knowledge within nursing research. Nurs. Philos. 2010; 11(4):260-70.
16. De Labry AO, García L, Bermúdez C. Identificación de indicadores de resultado en salud en atención primaria. Una revisión de revisiones sistemáticas. Rev. Calid. Asist. 2017; 32(5):278-88.
17. Muñoz, FJ. *Dasein* y auto-apropiación: el *tiempo* como constitutivo de *nuestra* realidad. Co-herencia. 2018; 15(29):93-120.
18. Rojas JB, García ML, Cárdenas L, Vázquez L, Kempfer SS. Adaptation of the model of Kristen Swanson for nursing care of elderly women. Texto Contexto Enferm. 2018; 27(4):e0660017.

Factors associated with the duration of breastfeeding in mothers of babies cared for in a kangaroo family program

Original article

Isabel-Cristina Giraldo-Marín[1,6]
https://orcid.org/0000-0002-4093-6087
Natalia Andrea Henao Murillo[2,6]
https://orcid.org/0000-0001-5447-5616
María Camila Londoño Rodríguez[3,7]
https://orcid.org/0000-0002-9192-3454
Manuela Aguirre Torres[4,7]
https://orcid.org/0000- 0003-2651-2947
Gabriel Jaime López Palacio[5,8]
https://orcid.org/0000- 0002-0372-734X

UNIVERSIDAD DE ANTIOQUIA
1803

Factors associated with the duration of breastfeeding in mothers of babies cared for in a kangaroo family program

Abstract

Goal. To determine the factors associated with the duration of breastfeeding in mothers of babies cared for in a kangaroo family program. **Methods.** Quantitative, observational study with a secondary source of a retrospective cohort of 707 babies with monitoring at admission, at 40 weeks, at three and at six months of corrected age in the kangaroo family program of a public hospital in the municipality of Rionegro (Antioquia, Colombia) from 2016 to 2019. **Results.** 49.6% of babies were born with low weight for gestational age and 51.5% were female. 58.3% of the mothers were unemployed and 86.2% of them lived with their partner. When entering the kangaroo family program, 94.2% of the babies received breastfeeding and at six months they were 44.7%. The variables that were associated with the duration of breastfeeding up to six months according to the explanatory model were: the

---

1 Nurse, Master. Teacher.
Email: isabelgir10@gmail.com
2 Nurse, Master. Teacher.
Email: nathyh75@gmail.com
3 Nurse. Email: macalodri12@gmail.com
4 Nurse, Specialist. Email: manu1152@hotmail.com
5 Health Information Systems Manager, Master. Teacher. Email: gabrieljlp@gmail.com
6 Catholic University of the East, Rionegro, Colombia.
7 Neonatal Intensive Care Unit in SOMER Clinic, Rionegro, Colombia.
8 CES University, Medellín, Colombia.

Conflict of interests: None
Received: April 18, 2022.
Approved: October 8, 2022
How to cite this article. Giraldo-Marín IC, Henao NA, Londoño MC, Aguirre M, López GJ. Factors associated with the duration of breastfeeding in mothers of babies cared for in a kangaroo family program. Invest. Educ. Enferm. 2022; 40(3):e08.
DOI: https://doi.org/10.17533/udea.iee.v40n3e08.

mother's cohabitation with her partner (adjusted prevalence ratio - APR: 1.34) and receiving breastfeeding when entering the kangaroo family program (APR: 2.30). **Conclusion.** The factors related to the duration of breastfeeding in mothers of babies cared for in the kangaroo family program were that the mother lived with her partner and that the mother was breastfeeding when she entered the program, therefore they received education and support from the interdisciplinary team, which could favor confidence and willingness towards breastfeeding.

Descriptors: infant, premature; kangaroo-mother care method; breast feeding; health personnel.

Factores asociados a la duración de la lactancia en madres de bebés atendidos en un programa de familia canguro

Resumen

Objetivo. Determinar los factores asociados a la duración de la lactancia en madres de bebés atendidos en un programa de familia canguro. **Métodos.** Estudio cuantitativo, observacional con fuente secundaria de una cohorte retrospectiva de 707 bebés con seguimiento al ingreso, a las 40 semanas, a los tres y a los seis meses de edad corregida en el programa familia canguro de un hospital público del municipio de Rionegro (Antioquia, Colombia) entre 2016 y 2019. **Resultados.** El 49.6 % de los bebés nacieron con bajo peso para la edad gestacional y 51.5% eran de sexo femenino. El 58.3% de las madres eran desempleadas y un 86.2 % de ellas convivía con su pareja. Al ingresar al programa familia canguro, el 94.2 % de los bebés recibían lactancia materna y a los seis meses correspondió al 44.7%. Las variables que se asociaron con la duración de la lactancia materna hasta los seis meses según el modelo explicativo fueron: la convivencia de la madre con la pareja (razón de prevalencia ajustada - RPa: 1.34) y recibir lactancia al ingresar al programa familia canguro (RPa: 2.30). **Conclusión.** Los factores que se relacionaron con la duración de la lactancia en madres de bebés atendidos en el programa de familia canguro fueron, por un lado, que la madre conviviera con su pareja y, por otro, que la madre estuviera lactando al ingreso al programa, por lo que recibieron educación y acompañamiento por parte del equipo interdisciplinario, lo cual pudo favorecer la confianza y disposición hacia la lactancia.

Descriptores: recién nacido prematuro; método madre-canguro; lactancia materna; personal de salud.

Fatores associados à duração do aleitamento materno em mães de bebês atendidos em programa família canguru

Resumo

Objetivo. Determinar os fatores associados à duração do aleitamento materno em mães de bebês atendidos em um programa família canguru. **Métodos.** Estudo quantitativo, observacional com fonte secundária de uma coorte retrospectiva de 707 bebês com acompanhamento na admissão, às 40 semanas, aos três e seis meses de idade corrigida no programa família canguru de um hospital público do município de Rionegro (Antioquia, Colômbia) entre 2016 e 2019. **Resultados.** 49.6% dos bebês nasceram com baixo peso para a idade gestacional e 51.5% eram do sexo feminino. 58.3% das mães estavam desempregadas e 86.2% delas moravam com o companheiro. Ao ingressar no programa família canguru, 94.2% dos bebês receberam aleitamento materno e aos seis meses correspondeu a 44.7%. As variáveis que se associaram à duração do aleitamento materno até seis meses segundo o modelo explicativo foram: a coabitação da mãe com o companheiro (razão de prevalência ajustada - TAEG: 1.34) e receber aleitamento materno ao ingressar no programa família canguru (RPa: 2.30). **Conclusão.** Os fatores que se relacionaram com a duração do aleitamento materno em mães de bebês atendidos no programa família canguru foram que a mãe morava com o companheiro e que a mãe estava amamentando quando ingressou no programa, para o qual receberam educação e apoio da da equipe interdisciplinar, o que poderia favorecer a confiança e disposição para a amamentação.

Descritores: recém-nascido prematuro; método canguru; aleitamento materno; pessoal de saúde.

Introduction

Complications associated with prematurity and low birth weight are an important cause of morbidity and mortality.(1) Therefore, babies born with any of these conditions should receive care under the Kangaroo Mother Care Method (KMC) guidelines, which corresponds to a set of protocolized and standardized care for high-risk newborns that is based on skin-to-skin contact, feeding ideally based on breast milk and a timely hospital discharge, with the purpose of empowering parents in the baby care and detecting early warning signs. Likewise, they require monitoring by the multidisciplinary team of the outpatient program in order to identify developmental alterations and intervene them at the appropriate time.(2)

Various investigations support the benefits of KMC for babies, the family, and society highlighting its effect on breastfeeding, which is part of the components of kangaroo care. Feeding a preterm infant has special considerations related to the specific characteristics of milk, concerns about weight gain, and fear associated with breastfeeding.(3) Therefore, the self-efficacy and confidence of preterm infants' mothers regarding their ability to breastfeed are factors related to the duration and exclusivity of breastfeeding.(4) While breastfeeding rates have now improved among very low birth weight and normal weight infants, figures for those with low birth weight (between 1 500 g and < 2 500 grams) are further off target, likely because no answer is given to the need for support that the mothers of these babies have to breastfeed. This highlights the need to promote strategies aimed at ensuring that all newborns are breastfed.(5) Kangaroo care is one of the predictive factors of a longer duration of breastfeeding in preterm newborns and contributes to its increase up to 4.1 times compared to those who do not receive this care system.(6) Similarly, the early start of skin-to-skin contact between the mother and her child has a positive effect on the duration of breastfeeding up to six months.(7) Aspects such as the father's positive attitude, his participation, and his support for the mother during this process influence the mother's decision and commitment to breastfeed for a longer time.(8) Educational and employment aspects also have an effect on breastfeeding. Some investigations report a higher proportion and duration of this practice among women with a better educational level,(9) while, among female workers, these indicators are lower mainly when they return to their jobs.(10)

Health workers have a fundamental role related to exclusive and continuous breastfeeding. A study carried out with nurses and mothers of preterm newborns showed that nursing interventions to accompany, guide, and encourage women to practice breastfeeding have a positive effect on their abilities and willingness to breastfeed.(11) Similarly, care focused on premature babies and their families, as well as institutional policies to promote breastfeeding, favor the mothers' conditions and willingness to practice it.(12) Based on the above, the purpose of this study was to determine the factors associated with the duration of breastfeeding up to six months of corrected age in a group of children cared for in the kangaroo family program of a municipality located in the department of Antioquia. (Colombia).

Methods

Quantitative, observational, analytical study of a retrospective cohort of 707 children treated in the kangaroo family program of a public hospital in the municipality of Rionegro (Antioquia, Colombia). The inclusion criterion was attendance at the six-month CA (Corrected Age) control. Patients with hypoxic ischemic encephalopathy and grade III and IV intraventricular hemorrhage were excluded. None of the patients had a contraindication for breastfeeding or palatal defects. The corrected age is defined as the chronological age in days or weeks that the baby was missing to complete 40 weeks of gestation.(13) The source of the information corresponded to the database collected by the program staff on the interventions with the children in the different monitoring periods that corresponded to admission, 40 weeks, three and six months of CA. The interdisciplinary team consisted of pediatrics, nursing professionals and assistants, psychology, physiotherapy, speech therapy, optometry, and retinology. Control care included physical examination, developmental assessment, stimulation techniques, evaluation of the socio-affective context, and education on breastfeeding positions, signs of proper breast grip, tube or syringe feeding techniques, re-breastfeeding, baby care at home and alarm signs. In each control, the type of feeding was asked but it was not possible to determine the proportion of babies exclusively breastfed up to six months of CA, since this variable was not included in the database and when they were seen at this appointment a high proportion was already receiving complementary feeding.

The study had the approval of the ethics committee of the health institution and the Catholic University of the East, classifying it as risk-free research in accordance with the Colombian resolution that establishes the scientific, technical, and administrative standards for health research.(14) The identification data of the children and their families were anonymized to preserve their privacy.

The descriptive analysis of the variables was done according to their nature. For the qualitative ones, relative frequencies were calculated; and for the quantitative ones, the average was calculated with its measure of dispersion after evaluating the normality in its distribution with the Kolmogorov Smirnov test. Bivariate analysis was performed to establish the association of the dependent variable (duration of breastfeeding) with each of the selected independent variables using the Chi2 test with a significance level of 5% ($p<0.05$) and crude RPs were calculated. In the multivariate analysis, all the selected variables were included and through logistic regression with the Enter method, the adjusted ORs were generated. The level of significance was established at 5% ($p<0.05$). Since the multivariate model generates the OR association measure, the Stromberg (15) formula was used to convert it to RP. The analyzes were performed with the R statistical package.

Results

The gender distribution was similar and about half of the cohort were classified as term newborns with low weight for gestational age (RNAT-PBEG, abbreviation in Spanish). The GA average was 35.8 weeks (SD: 2.2), birth weight was 2228.7 grams (SD 382.6), and height was 45.7 centimeters (SD 3.1). The mothers' average age was 27 years old (SD: 6.4) and the fathers' average age was 31 years old (SD: 7.6). At the six-month CA control, about half of the children were still being breastfed. Characterization data are presented in Table 1.

Table 1. Sociodemographic, economic and clinical characteristics of babies cared for in the kangaroo family program

Variable	Category	*n*	%
Pregnancy	Planned	400	56.6
	Unplanned	307	43.4
Type of housing	Rural	244	34.5
	Urban	463	65.5
Social security system	Contributory	497	70.3
	Subsidized	210	29.7
Cohabitation of the mother with the couple	Cohabits	609	86.2
	Does not cohabit	98	13.8
Mother schooling	Primary or high school	450	63.6
	Technique or technology	152	21.5
	Professional or specialist	105	14.9
Mother occupation	Unemployed	412	58.3
	Employed	295	41.7
Works during pregnancy	Yes	335	47.4
	No	372	52.6
Father schooling	Primary or high school	478	67.6
	Technique or technology	98	13.9
	Professional or specialist	80	11.3
	No data	51	7.2
Father occupation	Unemployed	9	1.3
	Employed	655	92.7
	No data	43	6.0
Monthly family income	More than minimum wage	411	58.1
	A minimum wage or less	296	41.9
Family Nutrition (servings)	3 servings or less	289	40.9
	4 servings or more	418	59.1
Sex of the newborn	Female	364	51.5
	Male	343	48.5
Birth weight/gestational age classification	RNAT-PBEG	351	49.6
	RNPT-PAEG	191	27.0
	RNPT-PBEG	165	23.3
Type of birth	Spontaneous vertex birth	400	56.6
	Caesarean section birth	307	43.4
Birth hospitalization	Yes	432	61.1
	No	275	38.9
Breastfeeding upon admission to the KFP	Yes	667	94.3
	No	40	5.6

At the time of admission to the program, 94.2% of the babies were breastfed and this proportion increased to 97.9% at the 40-week CA monitoring. Then, a decrease was observed in the appointments corresponding to the three and six months of CA (See Figure 1).

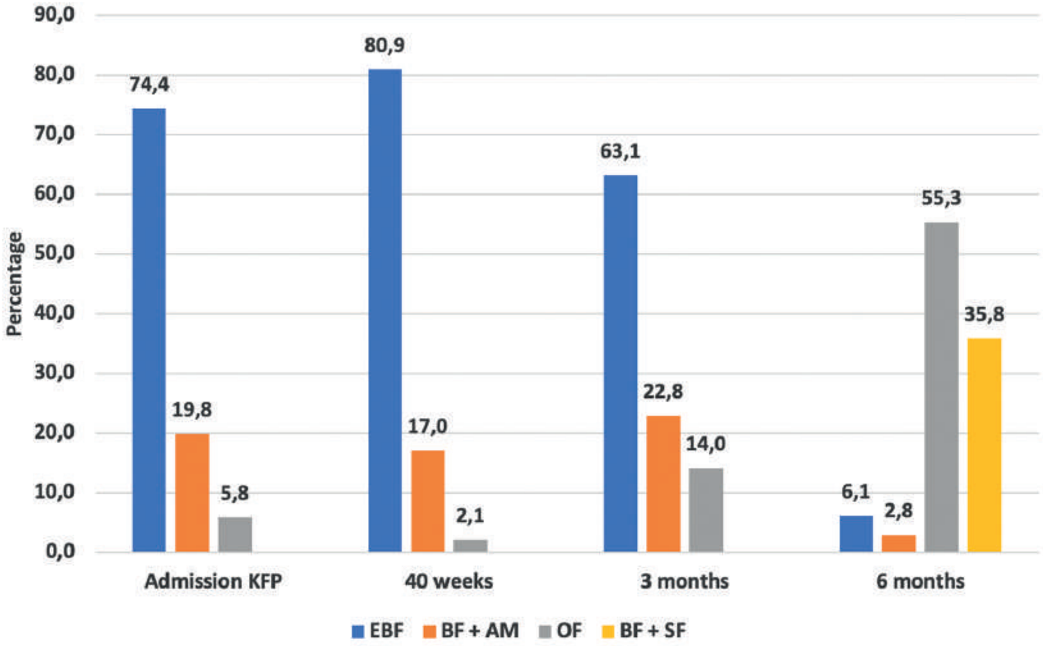


Figure 1. Distribution of children according to the type of feeding in the controls of the kangaroo family program

Note: EBF (exclusive breastfeeding); BF + AM (breastfeeding + artificial milk); BF + SF (breastfeeding + supplementary feeding); Other food (artificial milk, supplementary feeding or both).

The variables that were associated with breastfeeding in the unadjusted analyzes were: number of control appointments attended in the kangaroo family program up to six months of corrected age, height at birth, health system, type of housing, cohabitation of the mother with the couple, the mother's occupation, family nutrition, having worked during the pregnancy, type of birth and breastfeeding upon admission to the program. These variables presented a significant association (p<0.05) with the dependent variable. Once the explanatory model was made, adjusting for all the variables that were associated in the bivariate analysis, only the cohabitation of the mother with the couple (APR 1.64; 95% CI: 1.04–2.61) and breastfeeding at the time of admission to the program (APR 3.17; 95% CI: 1.37–8.31) maintained their significant association with breastfeeding at six months. See Table 2.

Table 2. Sociodemographic, economic and clinical factors associated with the duration of breastfeeding at six months of corrected age

Variable		Breastfeeding at six months				PR (IC95%)	Chi2	*p*	APR† (IC95%)	APR† (IC95%)
		Yes		No						
		n	%	*n*	%					
Number of control appointments. Average±DE		3.71± 0.55		3.61± 0.65		1.325 (1.036 - 1.707)	2.27	0.02	1.15 (0.82 - 1.61)	-
Height when entering the program Average±DE		47.13± 4.09		47.97± 4.94		0.96 (0.92 -0.99)	-24.83	0.01	0.99 (0.94 - 1.03)	-
Type of housing	Urban	198	0.63	265	0.68	0.88 (0.75 - 1.05)	2.02	0.15	1.20 (0.86 - 1.67)	1.09 (0.86-1.67)
	Rural*	118	0.37	126	0.32					
Cohabits with the couple	Yes	282	0.89	327	0.84	1.33 (1.00 - 1.77)	4.60	0.03	1.64 (1.04 - 2.61)	1.34 (1.04-2.58)
	No*	34	0.11	64	0.16					
Mother's occupation	Employed	123	0.39	172	0.44	0.89 (0.75 - 1.05)	1.84	0.17	0.94 (0.61 - 1.45)	0.97 (0.61-1.45)
	Unemployed*	193	0.61	219	0.56					
Family nutrition	4 servings or more	199	0.63	219	0.56	1.18 (0.99 - 1.40)	3.51	0.06	1.26 (0.92 - 1.73)	1.14 (0.92-1.72)
	3 servings or less*	117	0.37	172	0.44					
Worked during pregnancy	Yes	140	0.44	195	0.50	0.88 (0.75 - 1.04)	2.17	0.14	0.90 (0.59 - 1.36)	0.94 (0.59-1.35)
	No*	176	0.56	196	0.50					
Type of birth	SVB	189	0.60	211	0.54	1.14 (0.96 - 1.35)	2.43	0.12	1.20 (0.89 - 1.64)	1.11 (0.88-1.64)
	Caesarean*	127	0.40	180	0.46					
Breastfeeding when entering the program	Yes	309	0.98	358	0.91	2.65 (1.34 - 5.21)	12.69	0.00	3.17 (1.37 - 8.31)	2.30 (1.30-7.72)
	No*	7	0.02	33	0.08					
Health system	Contributory	217	0.69	289	0.74	0.87 (0.73 - 1.03)	2.36	0.12	0.80 (0.55 - 1.15)	0.88 (0.55-1.15)
	Subsidized*	99	0.31	102	0.26					

*Reference category; APR: adjusted prevalence ratio; APR†: adjusted prevalence ratio with conversion from OR to PR using the Stromberg formula

Discussion

In this study, which aimed to determine the factors associated with the duration of breastfeeding up to six months in mothers of babies cared for in a kangaroo family program, the findings apply to families that were monitored up to six months of CA and they cannot be widespread to all program participants. Lizarazo-Medina *et al.*(16) carried out an investigation with premature and low birth weight babies to describe the effectiveness and achievements of the kangaroo mother program on their development. They found that when entering the KFP, half of the babies received exclusive breastfeeding and during the control at 40 weeks of corrected age, the proportion increased to 82%. In the present study, the first datum corresponded to about 75% of the babies and the second was similar (80.9%). This increase in the proportion of breastfeeding from admission to the 40-week control in both studies may be related to the education that the nursing staff of the program provides families on the care of the premature baby at home and on the lactation techniques.

In the present investigation it was not possible to establish the proportion of exclusive breastfeeding up to six months of corrected age, since, in a high proportion of cases, the babies' attendance to this control was later and the families had already incorporated the supplementary feeding. However, it was identified that 63.1% were exclusively breastfed at the three-month control and about half (44.7%) were non-exclusively breastfed at six months of corrected age. Montealegre-Pomar *et al.*(17) monitored 1138 premature and low birth weight infants in the Yopal kangaroo mother program and they determined that exclusive breastfeeding at six months was 59.2%. These data allow a comparison to be made with the results of the national nutritional status survey,(18) which reports a proportion of exclusive breastfeeding of 36.1% in children under six months of age, a lower percentage than the one found in both investigations. One possible explanation for why the prevalence of exclusive breastfeeding in children under six months in Colombia is lower than in kangaroo babies is the positive effect that monitoring by the interdisciplinary team of the program has on the decision and commitment of families for guaranteeing a longer duration of breastfeeding in this population which requires a special care system.

One of the fundamental axes of the kangaroo mother method is the feeding of the premature or low birth weight newborn, ideally with breast milk.(19) Therefore, identifying the factors associated with the duration of breastfeeding in this specific population contributes to promoting them in order to improve the results of kangaroo care. Encouraging mothers to practice kangaroo care and ensuring the appropriate conditions for it has a protective effect on breastfeeding in preterm and/or low birth weight newborns,(20,21) therefore, the support they receive from their family, and in particular from their partners, is a factor that favors this practice. In the present investigation, it was found that the cohabitation of the mother with her partner is an explanatory factor for breastfeeding the kangaroo baby up to six months of corrected age. Chugh *et al*.(22) report similar findings, since it is more difficult to continue exclusive breastfeeding for women who do not receive support from their family members in household chores, while the fathers' support favors this practice. Likewise, it was found in another study that the formation of a team between the woman and her partner favors kangaroo care and breastfeeding according to they take turns on the responsibilities so that the mother can rest or express milk while the baby is in skin-to-skin contact with the father.(23)

Timely hospital discharge with the guarantee of constant monitoring is a component of the KMC, from which emotional, physical and educational support is provided to the mother and family to favor the satisfaction of the kangaroo baby needs.(24) The application of the method can start from birth when skin-to-skin contact is established between the mother and the baby, which has a beneficial effect on breastfeeding.(25) This implies that the KMC starts from the hospital and it must be continued after discharge. In the present study, it was found that breastfeeding at admission to the KFP is an explanatory factor for the fact that kangaroo babies were breastfed up to six months of corrected age. The orientations that mothers receive from the health personnel during the kangaroo adaptation in the hospital, the education in maternal feeding techniques of the premature baby, and the monitoring by the interdisciplinary team of the kangaroo family program are factors that contribute to improving the confidence of mothers in their ability to breastfeed their premature child, which is evidenced as a factor that influences the duration of breastfeeding.(26) As stated by Sinha *et al.*,(27) advice to mothers by the health team contributes to improving the rates of early initiation, exclusivity and the total duration of breastfeeding.

The nursing staff plays an important role in the hospital and outpatient kangaroo care team, since they are responsible for adapting the premature baby to the KMC, monitoring their anthropometric parameters, guiding the mother and evaluating the quality of breastfeeding, and support the family in preparing for the baby care at home. Therefore, it is important that the interventions of the KFP interdisciplinary team contribute to the goal of improving breastfeeding rates in this population.

The conclusion of this study is that among the sociodemographic, economic, and clinical factors evaluated, the cohabitation of the premature babies' mothers with their partner and breastfeeding upon admission to the kangaroo family program were factors that were associated with the duration of breastfeeding in the explanatory model. Mothers who live with their partner have the possibility of sharing the responsibility of caring for the baby, and those who offer breastfeeding upon entering the program receive education and support from the interdisciplinary team, all of which can promote their confidence and willingness to breastfeed.

It is necessary to identify more adjustable factors that influence the duration of breastfeeding in kangaroo babies that can be the object of interventions, as well as it must be documented which specific interventions that are carried out in the KFP are more useful to contribute to this purpose.

One of the limitations of this study is that it was not possible to establish the prevalence of exclusive breastfeeding up to six months of corrected age because at the time of the study this variable was not defined in the database, since retrospective data were used which were collected with clinical and non-investigative purposes. Therefore, the database did not contain information on the rate of loss to monitoring in the program and on a greater number of economic, social, educational, and work variables that can influence the duration of breastfeeding. Another limitation is that most of the explored variables correspond to sociodemographic or birth factors that are not adjustable.

Grant. This article is derived from a research project entitled "Demographic, social, economic, and clinical factors that influence the duration of breastfeeding in high-risk patients who were monitored in the kangaroo family program in the municipality of Rionegro, between 12/16/2016 and 12/31/2019", which was financed by the Directorate of Research, Development and Innovation of the Catholic University of the East.

References

1. Liu L, Oza S, Hogan D, Chu Y, Perin J, Zhu J, et al. Global, regional, and national causes of under-5 mortality in 2000–15: an updated systematic analysis with implications for the Sustainable Development Goals. Lancet. 2016; 388(10063):3027–35.
2. Charpak N, Ruiz-Peláez JG. Improving survival of infants with low birthweight cared for outside hospitals. Lancet. 2019; 394(10210):1688–90.
3. Osorno J, Jaramillo ML, Carvajal J, Ballesteros A, Dávalos D, Velasco AM, et al. Lactancia materna en prematuros extremos y recién nacidos severamente enfermos: un reto ético y técnico para la medicina. Bogotá D.C.: Universidad Sergio Arboleda; 2017.
4. Moraes G, Christoffel M, Toso B, Viera C. Association between duration of exclusive breastfeeding and nursing mothers' self-efficacy for breastfeeding. Rev. Esc. Enferm. USP. 2021; 55(e:03702): e03702.
5. Campbell A, Miranda P. Breastfeeding Trends Among Very Low Birth Weight, Low Birth Weight, and Normal Birth Weight Infants. J. Pediatr. 2018; 200:71–8.
6. Heidarzadeh M, Hosseini MB, Ershadmanesh M, Gholamitabar Tabari M, Khazaee S. The Effect of Kangaroo mother care (KMC) on breast feeding at the time of NICU discharge. Iran Red. Crescent Med. J. 2013; 15(4):302–6.
7. Jayaraman D, Mukhopadhyay K, Bhalla AK, Dhaliwal LK. Randomized Controlled Trial on Effect of Intermittent Early Versus Late Kangaroo Mother Care on Human Milk Feeding in Low-Birth-Weight Neonates. J. Hum. Lact. 2017; 33(3):533–9.
8. Al Namir H, Brady AM, Gallagher L. Fathers and breastfeeding: Attitudes, involvement and support. Br. J. Midwifery. 2017; 25(7):426-40.
9. Francis J, Unger S, Bando N, Vance A, Gibbins S, Kiss A, et al. Postdischarge feeding of very-low-birth-weight infants: Adherence to nutrition guidelines. J. Pediatr. Gastroenterol. Nutr. 2018 ;67(3):401–8.
10. Abou-Elwafa HS, El-Gilany AH. Maternal work and exclusive breastfeeding in Mansoura, Egypt. Fam. Pract. 2019; 36(5):568–72.
11. Yu G, Liu F, Zhao Y, Kong Y, Wei H. Promoting Breastfeeding and Lactation Among Mothers of Premature Newborns in a Hospital in China. Nurs. Women's Health. 2021; 25(1):21–9.
12. Abugov H, Ochoa Marín SC, Semenic S, Arroyave IC. Barriers and facilitators to breastfeeding support practices in a neonatal intensive care unit in Colombia. Invest. Educ. Enferm. 2021; 39(1):e11.
13. Ministerio de Salud y Protección Social. Actualización de los Lineamientos Técnicos para la implementación de Programas Madre Canguro en Colombia, con énfasis en la nutrición del neonato prematuro o de bajo peso al nacer [Internet]. 2nd ed. Bogotá: Fundación Canguro; 2017.
14. Ministerio de Salud. Resolución número 8430 de 1993. Bogotá: Ministerio de Salud; 1993. https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/DIJ/RESOLUCION-8430-DE-1993.PDF
15. Schiaffino A, Rodríguez M, Pasarín M, Regidor E, Borrell C, Fernández E. ¿Odds ratio o razón de proporciones? Su utilización en estudios transversales. Gac. Sanit. 2003; 17(1):70–4.
16. Lizarazo-Medina JP, Ospina-Diaz JM, Ariza-Riaño NE. Programa madre canguro: una alternativa protección de los recién nacidos prematuros o con bajo peso al nacer. Rev Salud Pública. 2012; 14(2):32–45.
17. Montealegre-Pomar A, Sierra-Andrade AP, Charpak N. El Programa Madre Canguro de Yopal, Colombia: una oportunidad de seguimiento del niño prematuro. Rev. Salud Pública. 2018; 20(1):10–6.
18. Ministerio de Salud y Protección Social, Instituto Nacional de Salud, Instituto Colombiano de Bienestar Familiar - ICBF, Universidad Nacional de Colombia. Encuesta Nacional de la Situación Nutricional-ENSIN 2015 [Internet]. Bogotá D.C.; 2015 [cited 2021 Feb 28]. Available from: https://www.icbf.gov.co/sites/default/files/ensin_2015_final.pdf
19. Charpak N, Ruiz JG. Latin American Clinical Epidemiology Network Series – Paper 9: The Kangaroo Mother Care Method: from scientific evidence generated in Colombia to worldwide practice. J. Clin. Epidemiol. 2017; 86:125–8.
20. Giannì ML, Bezze E, Sannino P, Stori E, Plevani L, Roggero P, et al. Facilitators and barriers of breastfeeding late preterm infants according to mothers' experiences. BMC Pediatr. 2016 Nov 8;16(1):179.

21. Ghojazadeh M, Hajebrahimi S, Pournaghi-Azar F, Mohseni M, Derakhshani N, Azami-Aghdash S. Effect of Kangaroo Mother Care on Successful Breastfeeding: A Systematic Review and Meta-Analysis of Randomised Controlled Trials. Rev. Recent Clin. Trials. 2018; 14(1):31–40.
22. Chugh Sachdeva R, Mondkar J, Shanbhag S, Manuhar M, Khan A, Dasgupta R, et al. A Qualitative Analysis of the Barriers and Facilitators for Breastfeeding and Kangaroo Mother Care among Service Providers, Mothers and Influencers of Neonates Admitted in Two Urban Hospitals in India. Breastfeed Med. 2019; 14(2):108–14.
23. Norén J, Nyqvist KH, Rubertsson C, Blomqvist YT. Becoming a mother – Mothers' experience of Kangaroo Mother Care. Sex. Reprod. Healthc. 2018; 16:181–5.
24. Sharma D, Farahbakhsh N, Sharma S, Sharma P, Sharma A. Role of kangaroo mother care in growth and breast feeding rates in very low birth weight (VLBW) neonates: a systematic review. J. Matern. Neonatal Med. 2019;32(1):129–42.
25. Karimi FZ, Sadeghi R, Maleki-Saghooni N, Khadivzadeh T. The effect of mother-infant skin to skin contact on success and duration of first breastfeeding: A systematic review and meta-analysis. Taiwan J. Obstet. Gynecol. 2019; 58(1):1–9.
26. Asadi G, Aslani A, Nayebinia AS, Fathnezhad-Kazemi A. Explaining breastfeeding experiences and assessing factors affecting breastfeeding self-efficacy in mothers of premature infants: a mixed method study protocol. Reprod. Health. 2020 Mar 18 [cited 2022 Aug 22];17(1):42.
27. Sinha B, Chowdhury R, Sankar MJ, Martines J, Taneja S, Mazumder S, et al. Interventions to improve breastfeeding outcomes: A systematic review and meta-analysis. Acta Paediatr. Int. J. Paediatr. 2015; 104:114–35.

Types of analysis of validation studies in nursing: scoping review

Original article

Flávia Barreto Tavares Chiavone[1,7]
https://orcid.org/0000-0002-7113-2356

Fernanda Belmiro de Andrade[2,7]
https://orcid.org/0000-0002-9226-418x

Anderson Felipe Moura da Silva[3,7]
https://orcid.org/0000-0003-4677-6296

Isabelle Campos de Azevedo[4,7]
https://orcid.org/0000-0001-5322-7987

Quenia Camille Soares Martins[5,7]
https://orcid.org/0000-0002-4036-2423

Viviane Euzebia Pereira Santos[6,7]
https://orcid.org/0000-0001-8140-8320

Types of analysis of validation studies in nursing: *scoping review*

Abstract

Objective. To identify and map the types of analysis in nursing validation studies. **Methods.** This is a scoping review with collection carried out in July 2020. The following data extraction indicators were considered: year of publication, country of origin, type of study, level of evidence, scientific references for validation and types of analyses. Data were collected in the following bases: U.S. National Library of Medicine, Cumulative Index to Nursing and Allied Health Literature, SCOPUS, COCHRANE, Web of Science, PsycInfo, Latin American and Caribbean Literature in Health Sciences, CAPES Theses and Dissertation Portal, Education Resources Information Center, The National Library of Australia's Trobe, Academic Archive Online, DART-Europe E-Theses Portal, Electronic Theses Online Service, Open Access Scientific Repository of Portugal, National ETD Portal, Theses Canada, Theses and dissertations from Latin America. **Results.** The

1 Nurse, PhD student.
Email: flavia_tavares@hotmail.com.
Corresponding author.

2 Nurse, PhD Student.
Email: fernanda_belmiro_andrade@hotmail.com

3 Nursing undergraduate student.
Email: a.felipemour@gmail.com

4 Nurse, PhD. Professor.
Email: isabellebr2511@gmail.com

5 Nurse, PhD. Professor.
Email: queniacamillesm@gmail.com

6 Nurse, PhD. Professor.
Email: vivianeepsantos@gmail.com

7 Federal University of Rio Grande do Norte. Rio Grande do Norte, RN, Brazil.

Conflicts of interest: None

Received: August 21, 2021.

Approved: October 5, 2022.

How to cite this article: Chiavone FBT, Andrade FB, Silva AFM, Azevedo IC, Martins QCS, Santos VEP. Types of analysis of validation studies in nursing: scoping review: scoping review. Invest. Educ. Enferm. 2022; 40(3):e09.

DOI: https://doi.org/10.17533/udea.iee.v40n3e09.

sample consisted of 881 studies, with a predominance of articles (841; 95.5%), with a prevalence of publications in 2019 (152; 17.2%), of Brazilian origin (377; 42.8%), of the methodological study type (352; 39.9%). Polit and Beck stood out as the methodological reference (207; 23.5%) and Cronbach's Alpha (421; 47.8%) as the statistical test. Regarding the type of analysis, the exploratory factor analysis and the content validation index stood out. **Conclusion.** The use of at least one method of analysis was evident in more than half of the studies, which implied the need to carry out several statistical tests in order to evaluate the validation of the instrument used and show its reliability.

Descriptors: validation study; data analysis; nursing research; nursing.

Tipos de análisis de los estudios de validación de enfermería: *scoping review*

Resumen

Objetivo. Identificar y mapear los tipos de análisis de los estudios de validación de enfermería. **Métodos.** Esta es una revisión de alcance, con recolección realizada en julio de 2020. Se consideraron los siguientes indicadores para la extracción de datos: año de publicación, país de origen, tipo de estudio, nivel de evidencia, referencias científicas para la validación y tipos de análisis. Los datos se recolectaron en las siguientes bases: U.S. National Library of Medicine, Cumulative Index to Nursing and Allied Health Literature, SCOPUS, COCHRANE, Web of Science, PsycInfo, Latin American and Caribbean Literature in Health Sciences, CAPES Theses and Dissertation Portal, Education Resources Information Center, The National Library of Australia's Trobe, Academic Archive Online, DART-Europe E-Theses Portal, Electronic Theses Online Service, Open Access Scientific Repository of Portugal, National ETD Portal, Theses Canada y Tesis y disertaciones de América Latina. **Resultados.** La muestra la constituyeron 881 estudios, con predominio de artículos (841; 95.5%), con una frecuencia mayor de publicaciones en 2019 (152; 17.2%), de origen brasileño (377; 42.8%), del tipo de estudio metodológico. (352; 39.9%). Polit y Beck se destacaron como referencia metodológica (207; 23.5%) y el Alpha de Cronbach (421; 47.8%) como prueba estadística. En cuanto al tipo de análisis, se destacó el análisis factorial exploratorio y el índice de validación de contenido. **Conclusión.** En más de la mitad de los estudios fue evidente la utilización de, al menos, un método de análisis, lo que implicó la necesidad de realizar varias pruebas estadísticas con el fin de evaluar la validación del instrumento empleado y mostrar su fiabilidad.

Descriptores: estudio de validación; análisis de datos; investigación en enfermería; enfermería.

Tipos de análises dos estudos de validação na enfermagem: *scoping review*

Resumo

Objetivo. Identificar e mapear os tipos de análises dos estudos de validação em enfermagem. **Métodos.** Trata-se de uma *scoping review*, com coleta realizada em julho de 2020. Considerou-se como indicadores de extração de dados: ano de publicação, país de origem, tipo de estudo, nível de evidência, os referenciais científicos para validação e os tipos de análises. Os dados foram coletados nas bases: *U.S. National Library of Medicine*, *Cumulative Index to Nursing and Allied Health Literature*, SCOPUS, COCHRANE, *Web of Science*, PsycInfo, Literatura Latino-Americana e do Caribe em Ciências da Saúde, Portal de Teses e Dissertações da CAPES, *Education Resources Information Center*, *The National Library of Australia's Trobe*, *Academic Archive Online*, *DART-Europe E-Theses Portal*, *Electronic Theses Online Service*, Repositório Científico de Acesso Aberto de Portugal, National ETD Portal, Theses Canada, Teses e dissertações da América latina. **Resultados.** A amostra foi de 881 estudos, com predomínio de artigos (841; 95.5%), com prevalência de publicações em 2019 (152; 17.2%), de origem brasileira (377; 42.8%), do tipo estudo metodológico (352; 39.9%). Sobressaiu-se Polit e Beck como referencial metodológico (207; 23.5%) e Alfa de Cronbach (421; 47.8%) como teste estatístico. Em relação ao tipo de análise destacou-se a análise fatorial exploratória e o índice de validação de conteúdo. **Conclusão.** Em mais da metade dos estudos ficou evidente a utilização de pelo menos um método de análise, o que implicou a necessidade de realização de diversos testes estatísticos para avaliar a validade do instrumento utilizado e mostrar sua confiabilidade.

Descritores: estudo de validação; análise de dados; pesquisa em enfermagem; enfermagem.

Introduction

In the world scenario, there is a growing number of validation studies in the health field aimed at the production of technological resources with the purpose of supporting care in different contexts, both in the training and qualification of professionals, as well as in management and patient care.(1) From this perspective, there are studies aimed at nursing which make it possible to build tools that support the science of this area of knowledge and, consequently, the promotion of a safe, qualified praxis based on scientific evidence.(1,2) It is noteworthy that the validation procedures seek to verify the suitability, quality, legitimacy and credibility of an instrument based on the opinion of experts in the area of the resource theme and/or coming from the view of the target public, to which the validated object is intended.(1,3)

Furthermore, numerous materials can be submitted to validation stages, such as research instruments, care protocols, educational booklets, standard operating procedures, virtual learning objects, algorithms and others.(3) These materials may require one or more types of validation that must be specific and/or adapted, adequate, rigorous and linked to the material elaborated; among the types of validation, the content, cross-cultural, appearance, use and usability validation stand out.(1,4)

Content validation assesses whether the content produced is relevant, correct and adequate for what is proposed.(4) Transcultural validation determines the pertinence of translating an instrument to another reality regarding language and culture.(5) Appearance validation analyses whether the technology built has suitability in relation to graphic and cultural resources and whether it is understandable in terms of the language adopted.(6)

Use validation seeks to trace the degree of user satisfaction with the tool built. As for usability, the validation investigates the effectiveness, efficiency and relevance of the use of the technology in relation to the intended objective in a more broad manner.(6,7) Therefore, each type of validation needs an appropriate analysis of the data, which is based on a rigorous theoretical-methodological framework, since from this analysis it will be determined whether the technology in question is validated and suitable for use or requires adjustments so that it can be effectively used in practice.(1,3)

Thus, the data analysis stage is important for validation studies, as it is considered essential to establish the relevance and quality of the constructed material. However, the reliability of the analysis process must be in line with the material and type of validation performed.(3) Thus, it is essential to investigate the types of data analysis elucidated in the validation studies available in the scientific literature in order to identify and compile the various analysis methods and verify their association with the validation process used. Thus, there is the following guiding question "What types of analysis are used in validation studies in nursing?" and the objective was to identify and map the types of analysis of validation studies in nursing.

Methods

Study design. This is a Scoping Review with a research protocol registered in the Open Science Framework (DOI:10.17605/OSF.IO/YH9UZ) based on the recommendations of the Joanna Briggs Institute (JBI) Reviewer's Manual,(8) according to the proposed stages in the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation(9) according to the theoretical framework of Arksey and O'Malley.(10) This type of study seeks to identify and map the main concepts that support an area of knowledge through the survey of scientific productions and relevant studies in order to list the existing gaps in the literature. For this, the following stages are adopted: 1) delimitation of the research question; 2) identification of relevant studies; 3) selection of studies; 4) data mapping and; 5) grouping, summarization and presentation of the results.(10) With regard to the elaboration of the research question and descriptors listed, the Population, Concept and Context (PCC) strategy was used with the use of descriptors in health sciences (DECS) and their correspondents in English indexed in the Medical Subject Headings (MESH), where P (population) – validation study, C (concept) – data analysis and C (context) – nursing research. Thus, the following question was established: What types of analysis are used in validation studies in nursing?

Study location and data collection period. A primary investigation was carried out by crossing Data analysis AND Validation study AND nurse research in the National Library of Medicine (PUBMED) and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases to identify and survey the most common keywords frequently in surveys. Thus, the search strategy was obtained with the help of the Boolean operators AND and OR: Validation Study OR (Validation OR Instrument Validation) AND Data Analysis OR (Analysis) AND Nurse Research OR (Nursing Sciences). It should be noted that the search in each database was adapted to its specific search engines, but the compatibility of descriptor combinations was maintained. The capture of studies was performed in July 2020. The following platforms were used to search for articles: U.S. National Library of Medicine (PUBMED), Cumulative Index to Nursing and Allied Health Literature (CINAHL), SCOPUS, COCHRANE, Web of Science, PSYCHINFO, Latin American and Caribbean Literature in Health Sciences (LILACS). In view of the theses and dissertations that make up the gray literature, the following were explored: CAPES Thesis and Dissertation Portal, Education Resources Information Center (ERIC), The National Library of Australia's Trobe (Trove), Academic Archive Online (DIVA), DART- Europe E-Theses Portal, Electronic Theses Online Service (EThOS), Open Access Scientific Repository of Portugal (RCAAP), National ETD Portal, Theses Canada, Theses and dissertations from Latin America.

Selection criteria. The following inclusion criteria were defined for the eligibility of the studies: research related to the types of analysis of validation studies in nursing, studies published in full and available electronically on the CAPES Periodicals Portal through the Federated Academic Community (CAFe). No restrictions were established regarding language and time of publication. Editorials, letters to the editor, opinion articles and reflection articles were excluded. In addition, duplicate materials were counted only once.

Sample definition and Study variables. The study selection process took place in two stages, the first starting from reading the titles and abstracts, which were verified by peer reviewers. In the second stage, the studies were analyzed by reading the material in full and the indicators were extracted: year of publication, country of origin, type of study, level of evidence based on the JBI recommendations,(11) which consists of the framework that guides the scoping review, the scientific frameworks for validation and the types of analysis (tests, statistical calculations, etc.)

Data processing and analysis. The selected data were organized in a spreadsheet using the Microsoft Excel 2010® software, evaluated using simple descriptive statistics, and presented in graphs, tables and figures.

Results

From the search in the databases, 809,975 studies were initially identified, which were analyzed in stages that are described in Figure 1, so that a final sample of 881 studies was obtained.

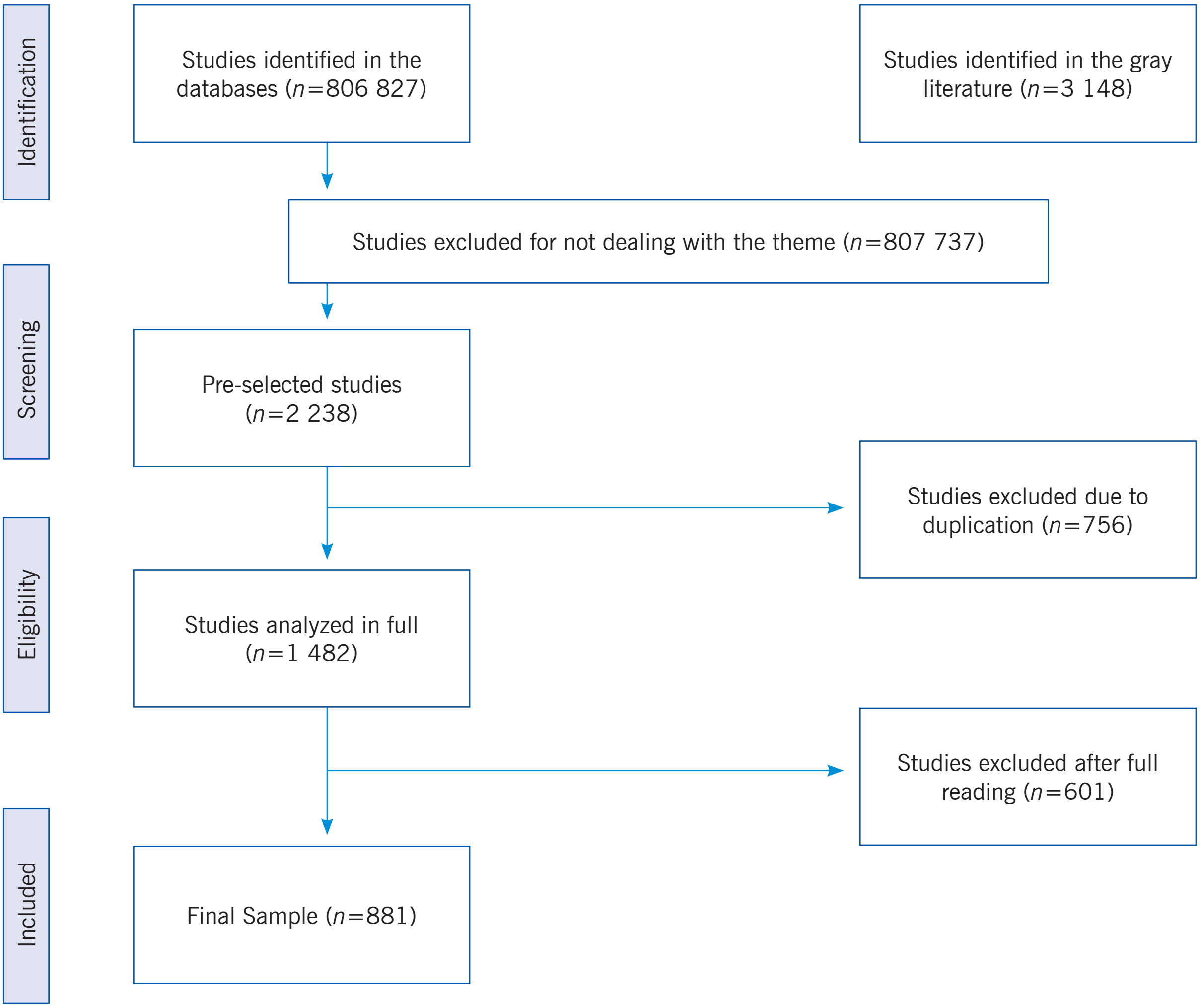


Figure 1. Flowchart of the study search and selection process

The selected studies consist of articles (841; 95.5%), dissertations (21; 2.3%) and theses (19; 2.2%). With regard to the period of publications, the year 2019 stood out (152; 17.2%) (Figure 2).

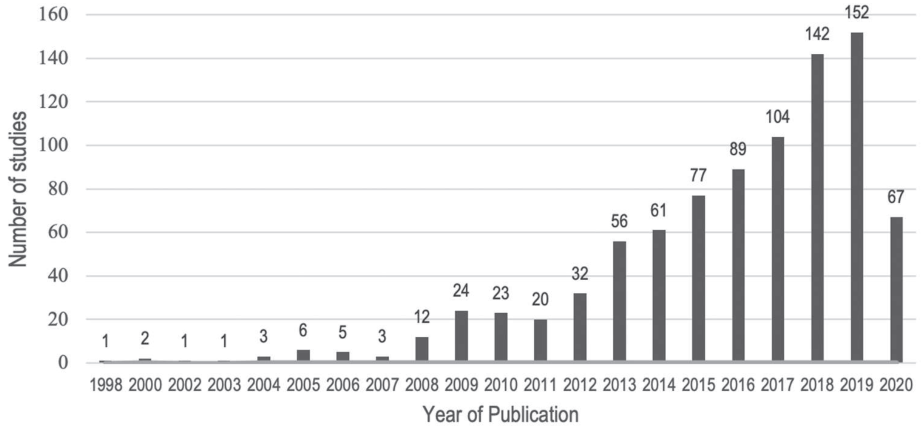


Figure 2. Distribution of years in which the 881 studies that made up the sample were published

Regarding the origin of the studies, Brazil (377; 42.8%), the United States of America (64; 7.2%) and Turkey (47; 5.3%) stood out, as shown in Figure 3.

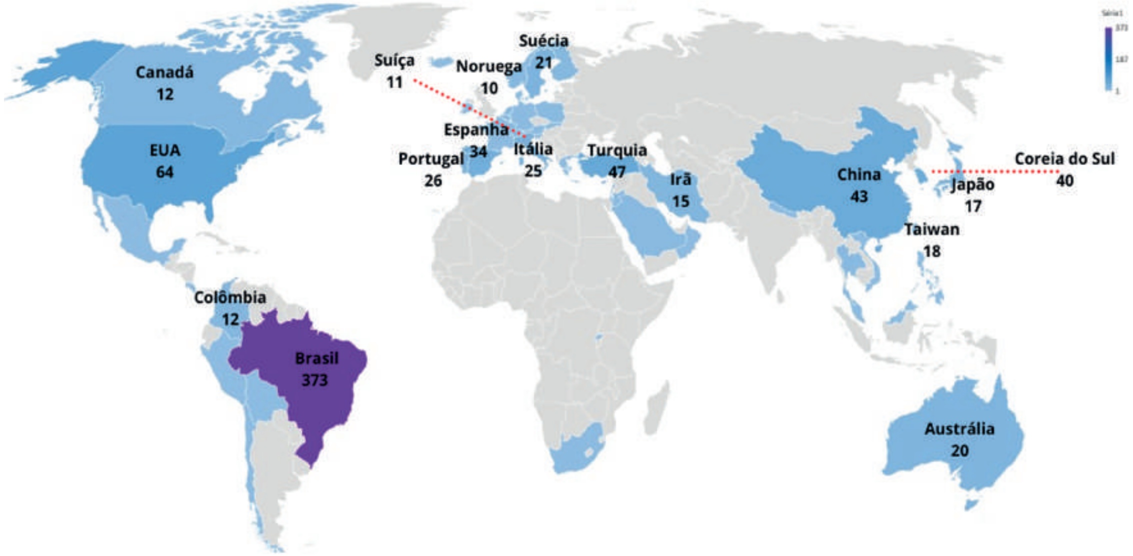


Figure 3. Countries where the studies were developed

Regarding the type of method, there was a prevalence of those classified as methodological (352; 39.9%), cross-sectional (163; 18.5%), validation studies (125; 14.2%), descriptive (50; 5.6%), observational (14; 1.5%), cohort and exploratory (6; 0.7%), quasi-experimental (4; 0.4%), accuracy, concept analysis, randomized clinical trial and action research (2; 0.2%) each, case control, sequential triangulation and systematic review (1; 0.1%) each. It is noteworthy that some studies (149; 16.9%) did not describe the method used. The levels of evidence of the studies were evaluated, in which there was a predominance of level five (477; 54.1%), followed by level four (238; 27.0%), level three (9; 1.0%), level two (4; 0.5%), and level one (3; 0.3%). In addition, the data collection indicators (main methodological references applied in the analysis of validation studies in nursing and the tests and statistical calculations performed) were synthesized and presented in Table 1.

Table 1. Synthesis with the references and methodological references used in the analyses of the 881 validation studies in nursing and the tests and statistical calculations performed

Indicators of the collection	Main Findings *n* (%)
References cited for the validation analyses	• Polit and Beck – 207 (23.5%) • Hair - 44 (5.0%) • Tabachnick and Fidell – 38 (4.3%) • Pasquali – 30 (3.4%) • Nunnaly and Bernstein – 30 (3.4%) • Hu and Bentler – 26 (2.9%) • Lynn – 24 (2.7%) • Fehring – 21 (2.4%) • Streiner and Norman – 19 (2.2%) • Kline – 18 (2.0%) • Cohen and Waltz – 17 (1.9%) • DeVellis – 13 (1.4%) • Altman – 10 (1.1%) • Figueiredo-Filho – 5 (0.6%) • Linacre – 4 (0.5%) • Fabrigar – 3 (0.3%) • Sampieri, Collado and Lucio – 3 (0.3%) • Bandura - 2 (0.2%) • Muthen and Muther – 2 (0.2%) • Salkind – 1 (0.1%) • Not appointed – 182 (20.7%)
Statistical tests and calculations	• Cronbach's Alpha – 421 (47.8%) • Kaiser-Meyer-Olkin test – 254 (28.8%) • Bartlett's sphericity test - 224 (25.4%) • Descriptive statistics - 86 (9.8%) • Student t test - 54 (6.1%) • Chi-square test - 38 (4.3%) • Pearson – 34 (3.9%) • ANOVA test - 33 (3.7%) • Mann-Whitney Test – 25 (2.8%) • Kolmogorov-Smirnov test – 18 (2.0%)

Table 1. Synthesis with the references and methodological references used in the analyses of the 881 validation studies in nursing and the tests and statistical calculations performed. (Cont.)

Indicators of the collection	Main Findings *n* (%)
Statistical tests and calculations	• Binomial Test - 13 (1.5%) • Kruskal-Wallis test – 13 (1.5%) • Shapiro-Wilk Test – 8 (0.9%) • Wilcoxon Test - 8 (0.9%) • Guttman Test - 7 (0.8%) • Arl Test - 6 (0.7%) • Friedman Test - 4 (0.5%) • Kuder-Richardson Thesis – 4 (0.5%) • Sam's Test - 4 (0.5%) • Youden Test – 4 (0.5%) • Horn Parallel Analysis - 3 (0.3%) • Lawshe Method – 3 (0.3%) • McDonald's Omega – 3 (0.3%) • Cluster Analysis - 2 (0.2%) • Aiken's V coefficient, – 2 (0.2%) • Iter-item coefficient –2 (0.2%) • Inter-total correlation – 2 (0.2%) • Lin concurrency coefficient –2 (0.2%) • Duncan's Test - 2 (0.2%) • Turkey-Kramer Test – 2 (0.2%) • Calinski-Harabasz Index – 1 (0.1%) • Dunn's Test - 1 (0.1%) • Hotelling T^2 Test - 1 (0.1%) • Levene Test - 1 (0.1%) • Cattell's Scree Test - 1 (01%) • Mean variance extracted - 1 (01%)

There were also variables such as the types of analysis of validation studies in nursing and the amount of analysis used in each research, which are described in Table 2.

Table 2. Synthesis of the types of analysis of the 881 validation studies, with the collection indicators: types of analysis and amount of analysis used

Indicators of the collection	Main Findings
Types of analysis	• Exploratory factor analysis - 360 (40.9%) • Content validity index – 346 (39.3%) • Confirmatory factor analysis - 213 (24.2%) • Intraclass correlation coefficient – 166 (18.8%) • Pearson's correlation coefficient – 134 (15.2%) • Agreement among judges – 85 (9.6%) • Kappa agreement coefficient – 80 (9.1%) • Spearman rank correlation– 68 (7.7%) • Accuracy measures - 15 (1.7%) • Kendall tau correlation coefficient – 10 (1.1%) • Rasch model. Content validity ratio - 8 (0.9%) • Diagnostic content validity – 7 (0.8%) • C-Score. Weight - 5 (0.6%) • Multi-trace-multi-method analysis – 3 (0.3%)
Number of analyses used in the studies	• One type of analysis – 440 (50%) • Two types of analysis – 266 (30.2%) • Three types or more – 176 (19.8%)

Discussion

Regarding the analysis of published studies, the predominance of articles was noticed. This finding is associated with the fact that this type of production is carried out in a shorter period of time compared to the others and, often, they consist of clippings from larger research, such as research reports, dissertations and theses.(12) Regarding the year of publication, 2019 stood out, which is in line with the growing popularization of validation studies to produce and legitimize quality instruments, which are essential to support and structure nursing care, with a view to reinforcing it as a science, as it proposes a practice based on literature and scientific knowledge.(13) It is noteworthy that such progression in the construction of these studies over the periods may have also been driven by the launch of the "Nursing Now" campaign, which aims to promote the appreciation of the profession by the end of 2020 through investment in the production of knowledge, technical-scientific advancement and health education, thus encouraging the development, the innovation of nursing science and the production of technologies in the area.(14)

When analyzing the origin of the materials that made up the sample, a significant portion of Brazilian archives was evidenced, which is supported by the gradual expansion of *stricto sensu* graduate courses in the health area, which foster the progress of science and technology, which require a careful evaluation before their implementation and, therefore, validation studies become essential as they attest to the quality of the tool developed.(15) Regarding the type of method used in the analyzed studies, there was a prevalence of methodological studies to the detriment of the others, which can be understood by its delimitation, since it allows the researcher to build his validation project structured in stages, from the idealization, search in the literature, elaboration and proof of its reliability for practice, therefore, it is more employable and, thus, more accepted.(16)

The data related to the references and benchmarks used in the validation analysis show Polit and Beck as the ones that obtained the highest number of citation. This finding can be explained by the wide dissemination of their works and the international recognition of the authors identified as specialists in research methods in health and nursing.(16) Another highlighted reference was that of Pasquali, who directs his assumptions to psychology, but is constantly adapted by health researchers to the area, generally associated with the need for validation of criteria, content and construct.(1) Pasquali's psychometry is marked by the completeness of its process, as it provides support for the construction and validation of the instrument, thus contemplating the necessary stages in a clear and objective way for the material to be considered usable, such attributes make the reference preterable among the others.(1,17)

With regard to tests and statistical calculations, the prevalence of Cronbach's Alpha was verified. This fact corroborates a study(18) carried out in 2017, which states that this is the most suitable for evaluating the estimate of the internal consistency of an instrument and is based on the degree of covariance between the items. Therefore, with Cronbach's alpha, the researcher is able to determine if the instrument developed is in line with the target audience, if it is repetitive and if it is consistent for what it intends to measure.(19) Another highlighted statistical calculation was the Kaiser-Meyer-Olkin (KMO) Test, which refers to whether the Factor Analysis (FA) is appropriate to the research data, and this is directly associated with the Bartlett's Sphericity Test, which presents the adequacy of the FA according to the hypothesis testing of the correlation and identity matrix.(20)

Thus, research(21) highlights the importance of the KMO test by allowing the verification and adjustment of variables as a fundamental process in validation studies, as they directly influence the constitution of the factors that represent the construct. Regarding the types of analysis, there was a predominance of factor analysis, which is classified as exploratory and confirmatory. Exploratory factor analysis in a validation procedure allows attesting to the representativeness of the data, thus making the material developed more succinct and objective, by grouping similar items.(22) While confirmatory, as the name implies, confirms the structure and construct of the instrument, considered indispensable in the validation processes, as it directs the management of the necessary factors so that the material does not deviate from its proposal.(18)

Still on the types of analysis, the wide use of the Content Validity Index (CVI) was found as one of the most important dimensions in the analysis of a material, since it allows the determination of the validation of the material based on statistical calculations defined according to the pre-established.(18,23,24) The CVI is in line with Polit and Beck, who guide the performance of this calculation in three ways: through the mean of the proportions of the items classified as relevant, through the sum of each CVI individual divided by the total number of items, or the sum of all relevant items divided by the total number of items.(19)

However, for Pasquali, this process is understood as Content Validation Coefficient (CVC) and differs in statistical calculations. In this case, each item and the instrument as a whole are validated according to previously established criteria and by means of an expert opinion, which provides the adequacy of the content and semantics of the material to make it understandable to the audience for which it is intended and compatible with the purpose for which it is available.(25) Both verify the suitability, representativeness and relevance of the instrument in relation to the phenomenon that it aims to measure. It is highlighted as a relevant characteristic to the subjectivity of these methods when considering the individuality in the interpretation of each judge and, consequently, can result in distortions in the evaluation.(1,26)

It is evident that the presence of one more method of analysis in 50% of the studies implies the need for several tests to measure the validation of a material and prove its reliability. These results corroborate an integrative review(27) by confirming the use of multi-methods in data analysis. Finally, the data extraction procedures are highlighted as a limitation of the study, since many studies that composed the sample described the data analysis stage succinctly and some did not fully portray the types of analysis and statistical calculations used to validate the material produced, which may imply limitations of the findings presented.

Conclusion. The main types of analysis used in validation studies in nursing are the exploratory factorial and the content validation index. Regarding the methodological framework, Polit and Beck stood out, and as a statistical test, Cronbach's Alpha for structuring and evaluating the tool produced. All these processes allow the improvement of the technologies developed and ensure their quality, in addition to enabling their use in health services, since such materials guide and the routine of professionals and turn it dynamic by subsidizing their practical performance and strengthening the theoretical basis.

Furthermore, as contributions from the research developed, the mapping of the analyzed information is elucidated, considering that from the results obtained, researchers will be able to base the analyses of their validation studies by understanding which types of analyses are most suitable for each type of approach according to the findings of this material, as well as statistical tests and calculations that can be associated and appropriate references and benchmarks.

References

1. Medeiros RK, Ferreira Júnior MA, Pinto DP, Vitor AF, Santos VE, Barichello E. Modelo de validação de conteúdo de Pasquali nas pesquisas em Enfermagem. Referência. 2015; 4(4):127-35.
2. Ferreira TM, Santos CL, Ferreira JD, Azevedo LR, Silva KL, Costa MM. Validação de instrumento para o cuidado em pediatria: um estudo integrativo. Enferm. Glob. 2019; 56(1):571-86.
3. Catunda HL, Bernardo EB, Vasconcelos CT, Moura ER, Pinheiro AK, Aquino OS. Percurso metodológico em pesquisas de enfermagem para construção e validação de protocolos. Texto Contexto Enferm. 2017; 26(2):e00650016.
4. Veras JE, Joventino ES, Coutinho JF, Lima FE, Rodrigues AP, Ximenes LB. Classificação de risco em pediatria: construção e validação de um guia para enfermeiros. Rev. Bras. Enferm. 2015; 68(5):913-22.
5. Dortas-Junior SD, Lupi O, Dias GA, Guimarães MB, Valle SO. Adaptação transcultural e validação de questionários na área da saúde. Braz. J. Allergy. Immunol. 2016; 4(1):26-30.
6. Cubas MR, Faroro NT, Moysés ST, Carvalho DR. Avaliação da atenção primaria a saúde: validação de instrumento para análise de desempenho dos serviços. Saúde Debate. 2017; 41(113):471-85.
7. Grebin SZ, Echeveste ME, Magnago PF, Tanure RL, Pulgati FH. Estratégia da análise para avaliação da usabilidade de dispositivos médicos na percepção do usuário: um estudo com pacientes em tratamento de hemodiálise. Cad. Saúde Pública. 2018; 34(8):e00074417.
8. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil, H. Chapter 11: Scoping Reviews (2020 version). In: Aromataris E, Munn Z (Editors). JBI Manual for Evidence Synthesis, JBI, 2020. Available from https://synthesismanual.jbi.global. https://doi.org/10.46658/JBIMES-20-12.
9. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann. Intern. Med. 2018, 169(7):467-73.

10. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int. J. Soc. Res. Meth. 2005; 8(1):19-32.
11. The Joanna Briggs Institute. The JBI Approach. Grades of recommendation. Levels of Evidence [Internet]. Adelaide (AU): The Joanna Briggs Institute; 2014 [cited 2020 Aug 25]. Available from: https://joannabriggs.org/sites/default/files/2019-05/JBI-Levels-of-evidence_2014_0.pdf.
12. Pereira RC, Basílio R, Leitão PD. Artigo científico: um gênero textual caleidoscópio. Delta. 2017; 33(3):1-34.
13. Figueiredo LC, Ferreira RC, Duran EC. Análise sobre estudos de validação de intervenções de enfermagem. Rev. Enferm. UFPE On Line. 2020; 14:e244508.
14. Burdett Trust for Nursing. Nursing Now. What we do [Internet]. London: Burdett Trust for Nursing, c2021 [cited 2020 Oct 27]. Available from: https://www.nursingnow.org/what-we-do/?doing_wp_cron=1603904757.7800529003143310546875.
15. Bahia SH, Hadadd AE, Batista NA, Batista SH. Ensino na Saúde como objeto de pesquisa na pós-graduação stricto sensu: análise do pró- ensino na saúde. Interface Comum. Saúde Educ. 2018; 22(1):1425-42.
16. Polit DF, Beck CT, Hungler BP. Fundamentos de pesquisa em enfermagem: métodos, avaliação e utilização. 7th ed. Porto Alegre: Artmed; 2011.
17. Pasquali L, et al. Instrumentação psicológica: fundamentos e práticas. 1st ed. Porto Alegre: Artmed, 2010.
18. Sousa AC, Alexandre NM, Guirardello EB. Propriedade psicométricas na avaliação de instrumentos: avaliação da confiabilidade e da validade. Epidemiol Serv Saude. 2017; 26(3):649-59.
19. Nunes JD, Iniesta AA, Rosales DJ, López YA. Coeficiente alfa de Cronbach para medir la fiabilidade de un cuestionario difuso. Culcyt. 2016; 59(13):146-56.
20. Matias NC. Elaboração de uma escala de envolvimento em atividades extracurriculares para crianças. Cienc. Psicol. (Montev).2019, 13(2):235-48.
21. Dini AP, Alves DF, Oliveira HC, Guirardello EB. Validade e confiabilidade de um instrumento de classificação de pacientes pediaáricos. Rev. Latinoam. Enferm. 2014; 22(4): 598-603.
22. Hongyu K. Análise Fatorial Exploratória: resumo teórico, aplicação e interpretação. Eng. Sci. 2018; 7(4):88-103.
23. Pedreira RB, Rocha SV, Santos CA, Vasconcelos LR, Reis MC. Validade de conteúdo do instrumento de avaliação da saúde do idoso. Einstein (São Paulo). 2016; 14(2):158-77.
24. Pinheiro DG, Coelho TP, Silva CF, Silva LA, Chiesa AM, Fracolli LA. Validação de conteúdo do programa de visita domiciliar para a dia de mãe-criança. Cogitare Enferm. 2018; 2(23):1-10.
25. Oliveira MA, Sousa WP, Maia EM. Adaptação e validade de conteúdo da versão brasileita da Cambridge worry scale. Rev. Enferm. UFPE On Line. 2017; 11(5):2083-89.
26. Silveira MBS, et al. Construção e validação de conteúdo de um instrumento para avaliação de quedas em idosos. Einstein (São Paulo). 2018; 16(2):1-8.
27. Vieira TW, Sakamoto VT, Moraes LC, Blatt CR, Caregnato RC. Métodos de validação de protocolos assistenciais de enfermagem: revisão integrativa. Rev. Bras. Enferm. 2020, 73(Suppl 5):e20200050.

Original article

Effect of Fear, Concern, and of Risk Factors for Complicated Covid-19 on Self-Care in People in Pre-elderly and Elderly Stages

Josué Arturo Medina-Fernández[1]
https://orcid.org/0000-0003-0588-9382
Isaí Arturo Medina-Fernández[2]
https://orcid.org/0000-0003-2845-4648
Nissa Yaing Torres-Soto[3]
https://orcid.org/0000-0003-3646-6649
Luis Carlos Cortez-González[4]
https://orcid.org/0000-0002-1655-0272
Fernanda Guadalupe Rascón-Arriaga[5]
https://orcid.org/0000-0002-7201-5354
Diana Berenice Cortes-Montelongo[6]
https://orcid.org/0000-0003-4254-2468

Effect of Fear, Concern, and of Risk Factors for Complicated Covid-19 on Self-Care in People in Pre-elderly and Elderly Stages

Abstract

Objective. The work sought to determine the effect of the risk factors, fear, and concern on self-care regarding COVID-19 in people in pre-elderly and elderly stages. **Methods.** Correlational-predictive study, gathered through convenience sampling. The study applied the scale of fear of COVID-19 (Huarcaya *et al*.), the scale of concern about COVID-19 (Ruíz *et al*.,), and the scale of self-care during the COVID-19 confinement (Martínez *et al.,*). Descriptive and inferential statistics were applied as the mediation model based on regression. **Results.** The study had the participation of 333 people, with the majority being women (73.9%). Correlation was found between self-care with the scores from the scale of fear ($r = -0.133$, $p < 0.05$) and of concern ($r = -0.141$, $p<0.05$) regarding COVID-19. The direct effect of the model was $c' = 0.16$,

1 Master's in Nursing, Full-time research professor, Division of Health Sciences, Universidad Autónoma del Estado de Quintana Roo, Sede Chetumal.
E-mail: josuemedinafernandez@outlook.es

2 Master's in Nursing, Full-time research professor, Faculty of Nursing "Dr. Santiago Valdés Galindo", Universidad Autónoma de Coahuila, Sede Saltillo. E-mail: isai-medina@uadec.edu.mx

3 PhD in Social Sciences, Full-time research professor, Division of Health Sciences, Universidad Autónoma del Estado de Quintana Roo, Sede Chetumal. E-mail: nissa.torres@uqroo.edu.mx

4 PhD in Nursing Sciences, Full-time research professor, Faculty of Nursing "Dr. Santiago Valdés Galindo", Universidad Autónoma de Coahuila, Sede Saltillo. E-mail: lucortezg@uadec.edu.mx

5 PhD in Social Sciences, Professor and Researcher, Universidad Kino.
E-mail: fernanda_rascon@unikino.edu.mx

6 PhD in Nursing Sciences, Full-time research professor, Faculty of Nursing "Dr. Santiago Valdés Galindo", Universidad Autónoma de Coahuila, Sede Saltillo. E-mail: dicortesm@uadec.edu.mx

Received: 26 February 2022.
Approved: 5 October 2022.
How to cite this article: Medina-Fernández JA, Medina-Fernández IA, Torres-Soto NY, Cortez-González LC, Rascón-Arriaga FG, Cortes-Montelongo DB. Effect of Fear, Concern, and of Risk Factors for Complicated Covid-19 on Self-Care in People in Pre-elderly and Elderly Stages. Invest. Educ. Enferm. 2022; 40(3):e10.
DOI: https://doi.org/10.17533/udea.iee.v40n3e10.

[95% BCa CI = -0.28, -0.09]. The standardized value for the indirect effect was estimated as c = -0.14, [95% BCa CI= -0.23,-0.09]), which shows existence of a 14.0% effect of the mediating variable on self-care conducts in the prediction model. **Conclusion.** A direct effect exists of risk factors for COVID-19 complication on self-care, mediated by concern and fear, besides explaining by 14% the self-care conducts for COVID-19. Recommendation is made to address other emotional variables to consider if these increase the prediction.

Descriptors: fear; expression of concern; self-care; adult; aged; COVID-19.

Efecto del temor, la preocupación y de los factores de riesgo para COVID-19 complicado sobre el autocuidado en personas en etapa de prevejez y vejez

Resumen

Objetivo. Determinar el efecto de los factores de riesgo, temor y preocupación sobre el autocuidado ante la COVID-19 en personas en etapa de prevejez y vejez. **Métodos.** Estudio correlacional-predictivo, recolectado mediante un muestreo a conveniencia. Se aplicó la escala de temor ante el COVID-19 (Huarcaya *et al*.), la escala de preocupación ante el COVID-19 (Ruíz *et al*.) y la escala de autocuidado durante el confinamiento de COVID-19 (Martínez *et al.*). Se aplicó estadística descriptiva e inferencial como el modelo de mediación basado en regresión. **Resultados.** Participaron 333 personas, en su mayoría mujeres, 73.9%. Se halló correlación entre el autocuidado con los puntajes de la escala de temor (r=-0.133, $p<0.05$) y de preocupación (r=-0.141, $p<0.05$) ante la COVID-19. El efecto directo del modelo fue de c'=0.16, [95% BCa CI =-0.28,-0.09]. Por su parte, el valor estandarizado para el efecto indirecto se estimó en c=-0.14, [95% BCa CI= -0.23,-0.09]), lo que muestra la existencia de un efecto de 14.0% de la variable mediadora sobre las conductas de autocuidado en el modelo predictor. **Conclusión.** Existe un efecto directo de los factores de riesgo para complicación de la COVID-19 sobre el autocuidado, mediado por la preocupación y el temor, aunado a que explica en un 14% la conducta de autocuidado para la COVID-19. Se recomienda abordar otras variables emocionales para considerar si estas aumentan la predicción.

Descriptores: miedo; expresión de preocupación; autocuidado; adulto; anciano; COVID-19.

Efeito do medo, preocupação e fatores de risco para COVID-19 complicado no autocuidado em idosos e idosos

Resumo

Objetivo. Determinar o efeito dos fatores de risco, medo e preocupação no autocuidado diante da COVID-19 em pessoas na fase de velhice e velhice. **Métodos.** Estudo preditivo-correlacional, coletado por amostragem de conveniência. A escala de medo do COVID-19 foi aplicada (Huarcaya *et al.*), a escala de preocupação COVID-19 (Ruíz *et al*.) e a escala de autocuidado durante o confinamento COVID-19 (Martínez *et al.*). Estatísticas descritivas e inferenciais foram aplicadas como modelo de mediação baseado em regressão. **Resultados.** Participaram 333 pessoas, sendo a maioria mulheres 73,9%. Foi encontrada correlação entre o autocuidado e os escores da escala de medo (r=-0.133, $p<0.05$) e preocupação (r=-0.141, $p<0.05$) diante da COVID-19. O efeito direto do modelo foi c'=0.16, [95% BCa CI =-0.28,-0.09]. Por sua vez, o valor padronizado para o efeito indireto foi estimado em c=-0.14, [95% BCa CI= -0.23,-0.09]), o que mostra a existência de um efeito de 14.0% da variável mediadora sobre o self -comportamentos de cuidado no modelo preditor. **Conclusão.** Há efeito direto dos fatores de risco para complicações da COVID-19 no autocuidado, mediado pela preocupação e medo, além de explicar 14% do comportamento de autocuidado para a COVID-19. Recomenda-se abordar outras variáveis emocionais para considerar se elas aumentam a previsão.

Descritores: medo; expressão de preocupação; autocuidado; adulto; idoso; COVID-19.

Josué Arturo Medina-Fernández • Isaí Arturo Medina-Fernández • Nissa Yaing Torres-Soto •
Luis Carlos Cortez-González • Fernanda Guadalupe Rascón-Arriaga • Diana Berenice Cortes-Montelongo

Introduction

On 11 March 2020, the World Health Organization declared a global pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), designated as COVID-19. By early February 2022, over 5.15-million accumulated cases of COVID-19 had been registered in Mexico. The COVID-19 pandemic has affected all people; however, it has not been the same for everyone, given that big differences exist in health risks and self-care of the people.(1) Thus, during the course of the epidemic, the disease, as well as the health problems, fear, concern, which take place and are faced, negotiations in interpersonal relations have evolved, which is why the confinement and social distancing have been among the principal strategies generated by international organizations to curtail the advance of COVID 19; however, the emotional and mental health of the people has been seriously affected, more so in the most-vulnerable population, like those in the pre-elderly stage (between 45 and 59 years of age) and elderly stage (over 60 years of age).(2) Many daily life activities have changed due to the pandemic and the confinement, among these, the perceptions, relationships, their own and group behaviors.(3)

Moreover, by nature, humans are sociable beings, relationships are a fundamental part in the development of people and respond to our actions throughout history; instead, within the context of the pandemic unusual measures had to be taken to protect the most vulnerable population, that is how social distancing has led us to diminished contact and relationships among people. Among the principal psychological effects during the pandemic there are fear and concern in relation to COVID-19 and regarding the possible contagion of individuals and their families. For this reason, fear is considered a fundamental emotion for human survival, caused by a real threat that triggers distinctive reactions of fear or alarm, through physical and psychological responses and change.(4) The intensity of the responses of fear and anxiety will be mediated by biological and environmental factors, such as the presence of a chronic disease, overweight, being elderly, lack of knowledge about the disease, the news, personal experience, among others, which is why individual differences in expressing these emotions can range from a response of fear and anxiety, to elevated and even irreversible emotional states, experienced as excessive fear and anxiety.(5)

From the studies reviewed in the literature, negative psychological effects were observed, including symptoms of post-traumatic stress, confusion, and anger.(5) Stressing factors were due to the presence of spending more time in isolation, risk factors for COVID-19 complication, fear of infection, frustration, boredom, inadequate information, economic loss, and stigma about the disease.(6) Some studies even suggest lasting effects, where greater negative effects have been observed in women, in those living in urban areas and having antecedents of diagnosed anxiety.(7,8)

Another emerging theme is concern, given that during the confinement period, concern was related principally with the risk of their own contagion and of their relatives, the economic situation and health situation caused by other diseases.(9) Uncertainty about the treatment, symptoms and duration of the disease can result in diverse degrees of concern among the population and provoke changes in their attitudes and behaviors.(10)

The pandemic threatens different spheres of our lives; it is how fear and concerns can trigger changes in health self-care by people because they can neglect necessary actions to preserve health and those to prevent contagion of COVID 19.(6) During this time of pandemic, self-care is considered a coherent part in preventive treatment against COVID 19, given that it is justified if the person identifies those altered behavioral factors, prevention measures will increase and contagion cases could diminish, being applicable to the various variants that are identified, which is why the perspective of the people helps to be aware of their own health by improving information and skills to carry out the necessary care actions.(11) Likewise, this research is not only important for people undergoing an aging process during the COVID-19 pandemic, but, also as nursing staff, it allows considering those behavioral factors to work on them, coupled with the fact that it is important due to the social relevance and because of the humane care of vulnerable individuals, protecting them from incompetent or unsafe health practices, supporting the person to avoid disproportionate risks of contagion and avoid complications or risk of death.(12,13) Due to the foregoing, the proposal is to determine the influence of fear and concern about self-care regarding COVID-19 in people in pre-elderly and elderly stage.

Methods

This was a correlational-predictive study. A non-probabilistic convenience sampling was conducted, elaborated with the G Power program, calculating a sample size of 134 participants in pre-elderly and elderly stages, considering 0.05 probability of committing type-1 error, power of 90% ($1-\beta=0.9$) and size effect of 0.10. With the aforementioned, a sample of 333 people was obtained in pre-elderly and elderly stages, carried out through a convenience sampling based on the network, this was shared through the internet and other social networks (WhatsApp, Facebook, Instagram, Twitter, etc.), considering the self-applicable collection, or another case, a videoconference was held to apply the surveys. Among the inclusion criteria was being 45 years old or older, having a digital device to fill out the instruments or access to videocalls, and having a social network.

The characterization and measurement instruments were shared through social networks using Google forms; permission was obtained from the authors to use the instruments. The average time to answer the instruments was 20 min. The study was approved by the ethics and research committee of the Faculty of Nursing at Universidad Autónoma de Coahuila and the electronic informed consent was applied.

Among the measurement instruments, a data card was applied where participant personal data was considered, as well as the presence of COVID-19 in the family, having been diagnosed with the disease, and the number of risk factors for complication regarding this disease, such as suffering from hypertension, diabetes, tobacco use, chronic obstructive pulmonary disease, heart disease, immunosuppression, chronic kidney disease, overweight or obesity.

To measure fear of COVID-19, the scale by the same name was applied; it has seven items, with one-dimensional behavior in construct validity, which reported factor loadings from 0.66 onwards and an item-total correlation > 0.4. In its original version, it reports a Cronbach's alpha coefficient of 0.82. It has a five-point Likert-type response scale, from never to always. The scale indicates that a higher score means greater fear of COVID-19.(14) To measure concern, the study applied the scale concern for COVID-19, which has seven items, is one-dimensional, with an item correlation > 0.390 and factor loadings > 0.90, and reports Cronbach's alpha of 0.86. The scale has four-point Likert-type questions and interprets that a higher score indicates greater concern regarding COVID-19.(15) For the variable of self-care regarding COVID-19, the study applied the scale detection of self-care activities during the COVID-19 confinement (SSAS-14) in its Spanish version, comprised of 14 items with a Likert-type scale ranging from 1 to 7, with a Cronbach's alpha of 0.80 and it is interpreted that the higher the score, the greater the self-care activities during the COVID-19 confinement.(16)

The statistical analysis used the SPSS program version 25, which applied descriptive statistics by using means, standard deviation, frequencies and percentages. Correlations were explored among continuous variables from Spearman's statistic, with prior compliance of normality requirements.

To test the mediation model based on regression, the Macro Process was used for the SPSS statistical program[12] to examine the direct and indirect effects of the COVID-19 risk factors on self-care mediated by concern and fear (Figure 1 for the model). A multiple mediation analysis was performed with two mediating variables forming a causal chain. The PROCESS program is a macro (computational) tool that simplifies implementation of mediation, moderation, and analysis of conditional processes using manifest variables. Each estimation by PROCESS requires at least two regression equations and uses ordinary least-squares regression to calculate the parameters of each equation.(17,18)

Results

The study was made up of 333 participants of which 73.9% (246) were women and 26.1% (87) men, with mean age of 53.91 ±7.43 years; 63.4% (211) were married, followed by those who were divorced 15.6% (52), single 9.3% (31), and common-law 11.7% (39). With respect to COVID-19, 10.5% (35) contracted the disease and 49.8% (166) reported having had a relative with COVID-19, with a mean of 1.44 ±2.14 relatives infected, with minimum and maximum values of 1 to 10 relatives. Regarding the risk factors for complications during the disease, 62.2% reported having at least one risk factor, with a mean of 1.03 ±1.14 and minimum and maximum values of 3 and 9 factors, respectively, observing mostly overweight/obesity, diabetes and hypertension.

Table 1 shows the sample's descriptive data; also, adults in elderly stage had greater fear, concern, and self-care regarding COVID-19, observing significant difference in self-care (p <0.05). In addition, the group comprised by whether they had endured COVID-19 has greater fear, concern, and self-care, but did not obtain significant difference with the group that had not endured it (p >0.05).

Table 1. Descriptive statistics of the study variables

Scale	Total		Pre-elderly		Elderly	
	M	SD	M	SD	M	SD
Fear of COVID-19	16.73	5.99	16.49	6.09	17.51	5.63
Concern regarding COVID-19	11.69	4.09	11.49	4.03	12.35	4.22
Self-care regarding COVID-19	62.32	12.90	61.49	13.10	65.10	11.53

Note: M = mean; SD = standard deviation.

Table 2 shows significant correlation among the study variables, among them observing that, the older the participant, the greater the number of risk factors for complication of COVID-19 and greater self-care. Likewise, it was found that the greater number of relatives with COVID-19 diagnosis, the greater the fear. Moreover, it was observed that a greater number of risk factors for COVID-19 complication meant greater fear, concern, and self-care. Lastly, it was found that greater self-care indicated less fear and concern regarding COVID-19.

Table 2. Correlation of the interpersonal and emotional variables in the participants

	1	2	3	4	5
1. Age	1				
2. Number of relatives with COVID-19 diagnosis	-0.019	1			
3. Number of pathologies as risk factors for COVID-19 complication	0.162**	0.151**	1		
4. Fear of COVID-19	-0.019	0.199**	0.233**	1	
5. Concern regarding COVID-19	-0.045	0.183**	0.276**	0.819**	1
6. Self-care regarding COVID-19	0.54**	-0.043	-0.129*	-0.133*	-0.141**

Note: * =p<0.05, ** = p<0.001

The multiple mediation analysis was tested using a hierarchical regression analysis, as shown in the previous Figure 1. The normalized regression coefficient among the COVID-19 risk factors has a positive and significant effect on concern ($a_1 = 0.36$, $t = -3.4467$, $p < 0.001$), which – in turn – produces a negative effect on the self-care conducts ($b_1 = -0.15$, $t = -3.5679$, $p < 0.01$). Similarly, the COVID-19 risk factors affect positively and significantly the presence of fear ($a_2 = 0.17$, $t = -3.6523$, $p < 0.05$) with r^2 of 0.2129, indicating that the model explains 21.29% of the variance in self-care. In turn, fear produced a negative and significant effect on self-care ($b_2 = -0.22$, $t = -3.4328$, $p < 0.001$) with r^2 of 0.2246, explaining 22.46% of the variance in self-care. Finally, the indirect effect between worry about fear and self-care resulted statistically significant ($d_{1,2} = 0.16$, $p < 0.05$, CI [-0.29, -0.03]).

The model's direct effect resulted from $c' = 0.16$, 95% BCa CI [-0.28,-0.09], which indicates existence of an effect of the COVID-19 risk factors on self-care, mediated by concern and fear. In turn, the standardized value for the indirect effect (c=-0.14, 95% BCa, CI [-0.23,-0.09]) shows the existence of a 14.0% effect of the mediating variable on the self-care conducts in the prediction model. Although it is an effect considered small, we could look for other mediating variables to include in the model besides the risk factors associated with the coronavirus pandemic.

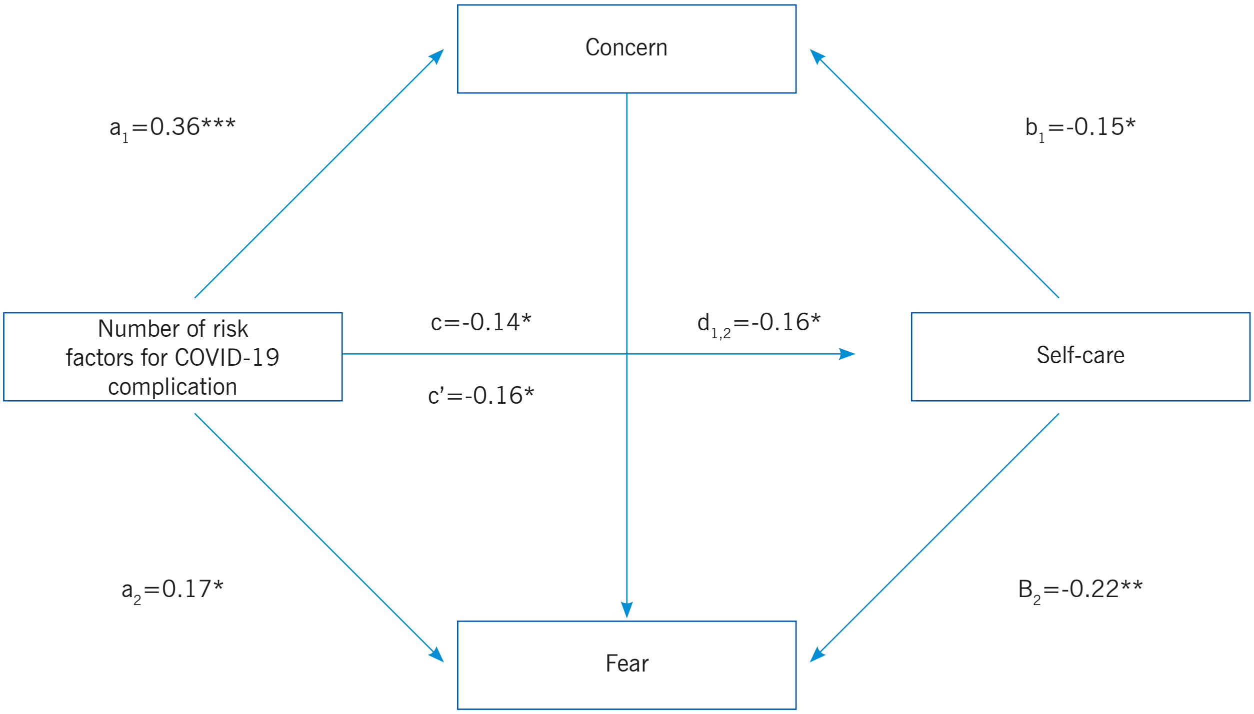


Figure 1. Mediation model among the COVID-19 risk factors and its effect on self-care, mediated by concern and fear (c; indirect effect = 0.14, p <0.05 CI [-0.23, -0.09]; c', direct effect = 0.16, p<0.05 CI [-0.28, -0.09]). Indirect effect: concern, fear, and self-care (d1,2=0.16). Note: *p<0.05, **p<0.01, ***p<0.001

Discussion

The study showed that the presence of risk factors for COVID-19 complication was high at 62.2%; higher than the 21.4% identified in the population of Bangladesh.(19) Presence of risk factors for COVID-19 in these age groups increases and may be due to changes in lifestyles, social or cultural factors, however, people with greater risk in this study have greater fear and concern regarding COVID-19, but no coherence exists with their self-care, given that they take less care of themselves.

Additionally, mental health aspects indicated that fear of COVID-19 obtained a mean of 16.73, lower than that reported in Turkey with a mean of 19.07(20) and New Zealand with a mean of 18.3,(21) with those > 60 years of age having the highest score. According with Odzin and Bayrak, fear is directly associated with its transmission measure and rate, as well as with its morbidity and mortality; likewise, high levels of fear make people create mental barriers that avoid rational reaction to COVID-19.(20,21)

With respect to worry about COVID-19, the sample obtained a mean of 11.69, greater than that reported in Turkey with a mean of 2.82 and 2.04 for Peru.(20,22) The foregoing can be explained because it may be associated with diminished wellbeing and a negative perception of overall health, perceiving higher risk of contagion.(22) Nevertheless, fear and worry may increase by uncertainty and insecurity, linked with the perception of severity of the disease, difficulties in its care, conditions under which the response is organized in each place, and risks derived from its exposure.(23) The result reported on self-care for COVID-19 was similar to that reported in Peru by Ruiz *et al.,* in 2020.(24) This sample indicated the lack of a coherent element in the preventive treatment against this disease, given that this perspective helps individuals to gain awareness of their own condition, through improved information and skills to perform adequate self-care actions.(24)

Moreover, our study found that with greater fear there is greater worry about COVID-19, this may be associated with concern having normal and adaptative functions upon situations that threaten or place the person's life at risk, possibly causing mental health condition.(25,26) It was found that individuals in elderly stage have greater fear, worry, and self-care regarding COVID-19; this may be because of the perception of vulnerability of having complications due to SARS-COV2 with respect to age and presence of comorbidities.(27) This research also found that lower fear means greater self-care; these results were similar to that reported by Hossain *et al.*, the aforementioned allows conducting recommended habits for COVID-19 prevention in the subjects.(19) Thus, individuals with fear of COVID-19 infection have recurrent controls of bodily temperature and hand washing, that is, they opt for greater self-care.(28)

Regarding the model, direct effect was found of COVID-19 risk factors on self-care mediated by worry and fear, coupled to it explaining by 14% the self-care conduct for COVID-19, which is due to the elevated presence of risk factors for COVID-19 complication and awareness of fear and concerns to avoid the disease could have caused changes in health behavior, the threat and vulnerability perceived that trigger the adoption of preventive efforts and self-care.(24-29)

Sample size was found among the study limitations, given that the results cannot be generalized; it is also suggested to conduct further studies in other parts of Mexico and the world, using the instruments indicated, to have a more global vision about fear, worry, and self-care regarding COVID-19.

Conclusion. Adults in pre-elderly and elderly stages had greater fear, concern, and self-care regarding the disease, with a relation existing between the last two. Coupled with the foregoing, direct effect was produced of the variables number of risk factors for complicated COVID-19, besides fear and concern about the self-care variable, explaining by 14% the self-care conducts for COVID-19. These results are of importance, given their application to improve knowledge on care and on the application of the nursing practice on people in pre-elderly and elderly stages. It is recommended to approach other emotional variables to consider if these increase predictions. Likewise, it is necessary to address the need to diminish or control these risk factors in the population studied to avoid an increase of complications and deaths related to this disease in Mexico.

References

1. Gobierno de México. Coronavirus COVID19 Comunicado Técnico Diario, diciembre 2020. Ciudad de México. Secretaria de Salud. 2020. P.1-6.
2. Guadalupe M, Lozano Z. Conceptualización del proceso de envejecimiento. Papeles de población. 1999; 5(19):23.41
3. Pinazo-Hernandis S. Impacto psicosocial de la COVID-19 en las personas mayores: problemas y retos. Revista española de geriatría y gerontología, 2020; 55(5), 249–252.
4. Luo X, Estill J, Wang Q, Lv M, Liu Y, Liu E, Chen Y. The psychological impact of quarantine on coronavirus disease 2019 (COVID-19). Psychiatr. Res. 2020; 291:113193.
5. Alam MD, Lu J, Ni L, Hu S, Xu Y. Psychological outcomes and associated factors among the international students living in China during the COVID-19 pandemic. Frontier Psychiatr. 2021; 12:707342.
6. Hernández J. Impacto de la COVID-19 sobre la salud mental de las personas. Medicentro Electr. 2020; 24(3): 578-94.
7. Brooks SK, Webster R K, Smith LE, Woodland L, Wessely S, Greenberg N, & Rubin G J. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet. 2020; 395(10227):912-20.
8. Özdin S, Bayrak Ş. Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: The importance of gender. Int. J. Soc. Psychiatry. 2020; 1–8.
9. Vásquez G, Urtecho-Osorto ÓR, Agüero-Flores M, Martínez M, Paguada R, Varela A, Echenique Y. Salud mental, confinamiento y preocupación por el coronavirus: Un estudio cualitativo. Rev. Interam. Psicol. 2020; 54(2):e1333.
10. Ruiz-Mamani P, Morales-García W, White M, Márquez-Ruiz M. Propiedades de una escala de preocupación por la COVID-19: análisis exploratorio en una muestra peruana. Med. Clin (Barc). 2020; 155:535–7.
11. Álvarez Escobar B, Mirabal Requena J, Naranjo Hernández Y. Estrategia de autocuidado en los adultos mayores con cáncer colorrectal en la comunidad. Rev. Arch. Méd Camagüey. 2019; 23(5):628-38.
12. Da Silva TCL, Fernandes ÁK de MP, do O' CB, Xavier SS de M, Bezerra de Macedo EA. O impacto da pandemia no papel da enfermagem: uma revisão narrativa da literatura. Enferm. Glob. 2021; 20(3):502–43.
13. Lahite-Savón Y, Céspedes-Pereña V, Maslen-Bonnane M. El desempeño del personal de Enfermería durante la pandemia de la COVID-19. Rev. Inf. Cient. 2020; 99(5):494–502.
14. Huarcaya-Victoria J, Villarreal-Zegarra D, Podestà A, Luna-Cuadros M. Psychometric Properties of a Spanish Version of the Fear of COVID-19 Scale in General Population of Lima, Peru. Int. J. Ment. Health Addiction. 2022; 20:249–62.
15. Ruiz-Mamani P, Morales-García W, White M, Marquez-Ruiz M. Propiedades de una escala de preocupación por el COVID-19: Análisis exploratorio en una muestra peruana. Med. Clin. (Barc). 2020; 155(15):535–7.
16. Martínez M, Luis E, Oliveros E, Fernández-Berrocal P, Sarrionandia A, Vidaurreta M, et al. Validity and reliability of the Self-Care Activities Screening Scale (SASS-14) during COVID-19 lockdown. Health Qual. Life Outcomes. 2021; 19(1):1–19.
17. Hayes A. Introduction to Mediation, Moderation, and Conditional Process Analysis. 3rd Ed. The Guilford Press; 2022.
18. Hayes,A, Montoya A, Rockwood N. he analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. Australas. Mark. J. 2017; 25(1):76–81.

19. Hossain M, Hossarin A, Walton L, Uddin Z, Haque O, Kabir F, et al. Knowledge, Attitudes, and Fear of COVID-19 during the Rapid Rise Period in Bangladesh. PLoS One. 2020; 15(9):e0239646.
20. Satici B, Gocet-Tekin E, Deniz ME, Satici S. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. Int. J. Ment. Health Addict. 2021; 19(6):1980-8.
21. Winter T, Riordan B, Pakpour A, Griffiths M, Mason A, Poulgrain J, Scarf D. Evaluation of the English Version of the Fear of COVID-19 Scale and Its Relationship with Behavior Change and Political Beliefs. Int J Ment Health Addict. 2020 Jun 15:1-11. doi: 10.1007/s11469-020-00342-9.
22. Caycho-Rodríguez T, Ventura-León J, Barboza-Palomino M. Design and validation of a scale to measure worry for contagion of the COVID-19 (PRE-COVID-19). Enf. Clin. 2021; (3): 175-83.
23. Ortiz Z, Capriati A, Ramos S, Romero M, Mariani J, Ortiz F, et al. Preocupaciones y demandas frente a COVID-19. Medicina (B. Aires). 2020; 80 (Suppl.3): 16-24.
24. Ruiz-Aquino M, Díaz-lazo A. Conductas de autocuidado en la prevención del contagio de la COVID-19 en pobladores peruanos. Rev. Cub. Med. Gen. Integr. 2020; 36(4):1–13.
25. Mirabal J, Álvarez B, Naranjo Y, Valdés V, Saenz L. Estrategia de autocuidado en los adultos mayores contra la COVID-19 en la comunidad. Panor Cuba y Salud. 2020;15(3):52–7.
26. Ferrer A. La Preocupación, Mal De Nuestros Días. Psicol desde el Caribe. 2002;9:76–88.
27. Vicente M, Ramírez V, Rueda J. Criterios de vulnerabilidad frente a infección Covid-19 en trabajadores. Rev. Asoc. Esp. Espec. Med.Trab. 2020; 29(2):12–22.
28. Khademi F, Moayedi S, Golitaleb M, Karbalaie N. The COVID‐19 pandemic and death anxiety in the elderly. Int. J. Ment. Health Nurs. 2020; 30(1):346-9.
29. Traunmüller C, Stefitz R, Gaisbachgrabner K, Schwerdtfeger A. Psychological correlates of COVID-19 pandemic in the Austrian population. BMC Public Health. 2020; 20(1): 1395.

Original article

Effectiveness of the application of an educational program based on the Health Belief Model (HBM) in Adopting Preventive Behaviors from Self-Medication amongWomen in Iran. A Randomized Controlled Trial

Ehsan Movahed[1]
https://orcid.org/ 0000-0002-4496-435X
Monireh Rezaee Moradali[2]
https://orcid.org/ 0000-0002-6450-7578
Mohammad Saeed Jadgal[3]
https://orcid.org/0000-0002-2122-9782
MoradAli Zareipour[4]
https://orcid.org/ 0000-0002-1039-896X
Mina Tasouji Azari[5]
https://orcid.org/ 0000-0002-5284-1165

Effectiveness of the application of an educational program based on the Health Belief Model (HBM) in Adopting Preventive Behaviors from Self-Medication among Women in Iran. A Randomized Controlled Trial

Abstract

Objective. To evaluate the effectiveness of the application of an educational program based on the Health Belief Model (HBM) in Adopting Preventive Behaviors from Self-Medication among Women in Iran. **Methods.** Interventional study with pre and post phases. 200 women referring to the health centers of Urmia were selected by simple random sampling, divided into two groups of treatment and control. Data collection instruments were researcher-devised questionnaire including the questionnaire of Knowledge of Self-medication, the Questionnaire of Preventive Behaviors from Self-medication, and the questionnaire of Health Belief Model. The questionnaires were assessed for expert validity and then, were checked

1 Department of Public Health, School of Public Health, Jiroft University of Medical Sciences, Jiroft, Iran .
Email: ehsan.movahed@yahoo.com
2 Urmia Branch, Islamic Azad University, Urmia, Iran.
Email: monir.rezaee@yahoo.co.uk
3 Tropical and communicable diseases research center, Iranshahr University of Medical Science and Health Services, Iranshahr, Iran. Department of Public Health, School of Nursing, Iranshahr University of Medical Sciences, Chabahar, Iran.
Email: jadgal15@gmail.com.
4 Department of Public Health, School of Health, Khoy University of Medical Sciences, Khoy, Iran. Email: zareipoor_m@khoyums.ac.ir.
Corresponding author.
5 Department of English Language, Islamic Azad University, Tabriz, Iran.
Email: minatasoujii@yahoo.com

Conflicts of interest: None.

Receipt: February 23, 2022.

Approved: October 5, 2022.

How to cite this article: Movahed E, Rezaee Moradali M, Jadgal MS, Zareipour MA, Tasouji Azari M. Effectiveness of the application of an educational program based on the Health Belief Model (HBM) in Adopting Preventive Behaviors from Self-Medication among Women in Iran. A randomized Controlled Trial. Invest. Educ. Enferm. 2022; 40(3):e11.

DOI: https://doi.org/10.17533/udea.iee.v40n3e11.

Investigación y Educación en
Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

for reliability. The educational intervention was conducted for the treatment group during four weeks four 45-minute sessions. **Results.** The average scores of knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, self-efficiency, and post-intervention performance in have increased in treatment group, comparing to the control group, All findings were statistically significant ($p<0.05$). Furthermore, social media, doctors, and disbelief in self-medication were more effective in increasing awareness and encouraging to have proper medication, also, the highest self-medication was in taking pain-relievers, cold tablets and antibiotics, which showed significant decrease in treatment group after the intervention. **Conclusion.** The educational program based on Health Belief Model was effective in reducing the self-medication among the studied women. Furthermore, it is recommended to use social media and doctors to improve the awareness and motivation among people. Thus, applying the educational programs and plans according to the Health Belief Model can be influential in reducing the self-medication.

Descriptors: health belief model; behavior; self medication; women.

Eficacia de la aplicación de un programa educativo basado en el Modelo de Creencias sobre la Salud en la adopción de conductas preventivas de la automedicación entre las mujeres de Irán. Un ensayo controlado aleatorio

Resumen

Objetivo. Evaluar la eficacia de la aplicación de un programa educativo basado en el Modelo de Creencias sobre la Salud (MCS) en la adopción de conductas preventivas de la automedicación entre las mujeres de Irán. **Métodos.** Estudio de intervención con evaluación pre y post. Se seleccionaron 200 mujeres que acudieron a los centros de salud de Urmia, a quienes se asignaron a los dos grupos de estudio (tratamiento y control) mediante un muestreo aleatorio simple. Para la recolección de la información se utilizaron los cuestionarios sobre: Conocimientos acerca de la automedicación, conductas preventivas de la automedicación y el modelo de creencias sobre la salud. Se evaluó la validez de los cuestionarios por parte de los expertos y luego se comprobó su confiabilidad. La intervención educativa se llevó a cabo para el grupo de tratamiento durante cuatro semanas con 1 sesión semanal de 45 minutos de duración. **Resultados.** Las puntuaciones medias de los conocimientos, la susceptibilidad percibida, la gravedad percibida, los beneficios percibidos, las barreras percibidas, las señales para la acción, la autoeficacia y el rendimiento posterior a la intervención aumentaron en el grupo de tratamiento en comparación con el grupo de control, y todos los resultados fueron estadísticamente significativos ($p<0.05$). Además, los medios de comunicación social fueron eficaces para aumentar la concienciación y animar a tener una medicación adecuada. La mayor automedicación fue en la toma de analgésicos, pastillas para el resfriado y antibióticos, que mostró una disminución significativa en el grupo de tratamiento después de la intervención. **Conclusión.** El programa educativo basado en el Modelo de Creencias de Salud fue eficaz para reducir la automedicación entre las mujeres estudiadas. Además, se recomienda utilizar los medios de comunicación social para mejorar la concienciación y la motivación de las personas.

Descriptores: modelo de creencias sobre la salud; conducta; automedicación; mujeres.

Eficácia da aplicação de um programa educativo baseado no Modelo de Crenças sobre Saúde na adoção de comportamentos preventivos de automedicação entre mulheres no Irã. Um ensaio clínico randomizado

Resumo

Objetivo. Avaliar a eficácia da aplicação de um programa educativo baseado no Modelo de Crenças em Saúde (HCM) na adoção de comportamentos preventivos de automedicação entre mulheres no Irã. **Métodos.** Estudo de intervenção com pré e pós avaliação. Duzentas mulheres que frequentavam os centros de saúde de Urmia foram selecionadas e alocadas nos dois grupos de estudo (tratamento e controle) por meio de amostragem aleatória simples. Para a coleta de informações, foram utilizados os questionários sobre: Conhecimento sobre automedicação, comportamentos preventivos de automedicação e o modelo de crenças sobre saúde. A validade dos questionários foi avaliada pelos especialistas e, em seguida, verificada sua confiabilidade. A intervenção educativa foi realizada para o grupo de tratamento durante quatro semanas com 1 sessão semanal com duração de 45 minutos. **Resultados.** Os escores médios de conhecimento, suscetibilidade percebida, gravidade percebida, benefícios percebidos, barreiras percebidas, pistas para ação, autoeficácia e desempenho pós-intervenção aumentaram no grupo de tratamento em comparação com o grupo de intervenção. controle, e todos os resultados foram estatisticamente significativos ($p<0.05$). Além disso, as mídias sociais foram eficazes na conscientização e no incentivo à medicação adequada. A maior automedicação foi em uso de analgésicos, antissépticos e antibióticos, que apresentou diminuição significativa no grupo de tratamento após a intervenção. **Conclusão.** O programa educativo baseado no Modelo de Crenças em Saúde foi eficaz na redução da automedicação entre as mulheres estudadas. Além disso, recomenda-se o uso das mídias sociais para melhorar a conscientização e a motivação das pessoas.

Descritores: modelo de crenças de saúde; comportamento; automedicação; mulheres.

Introduction

Healthy human is regarded as the basis of sustainable development, in which the role of medication has proven to be primary, effective and determinant.(1) As the most common form of self-care, self-medication is defined as taking medication without a doctor's prescription, using medications prescribed for other family members, refusing to take the original prescribed medication, and overusing over-the-counter under-medication medications.(2,3) The consequences of Self-medication may include complexities like disturbance in drug market, very high expenses of medicine budgeting of the government, the delay in treatment of a sever disease, development of drug resistance, no optimal treatment, poisoning, unwanted consequences and eventually may leading to death.(1) These days, according to Panchal et al., arbitrary drug use and self-medication in general, is considered as one of the biggest social, economic and health problems of different societies including Iran.(4) In the World Health Day Slogan in 2011 was declared the resistance to anti-bacterial drugs as a global threat. During a study on Italian families, 69% had arbitrary drug use at least once [6], and in the study done by Pavan, 5% of people had experienced arbitrary drug use.(5) The amount and range of self-medication is different in different cities of the country, so that it is reported as 94% in Ahvaz,(7) 63% in Tabriz,(8) 86% in Isfahan,(9) 54% in Arak,(10) and 83% in Yazd.(11)

In the meantime, paying attention to the population of women has great importance, as their experiencing some critical periods like pregnancy and breast feeding, more being in contact with family members, and being regarded as role models and examples for other family members. Different studies show that women show particular tendency to have self-medication, so arbitrarily and frequently use drugs to cure problems like dysmenorrhea, to eliminate symptoms of menopause, menstrual disorders, mood disorders, as well as the problems occur in pregnancy and breast feeding, all can bring about self-medication among women.(12)

The Health Belief Model (HBM) was one of the first behavior change models to explain health decision-making and the consequences of behavior, which was proposed by social psychologists in the 50s to explain people's desire to adopt preventive behaviors. After making corrections and adding new structures to this model, it was used to identify people's behavior in the field of disease prevention, screening and control.(13)

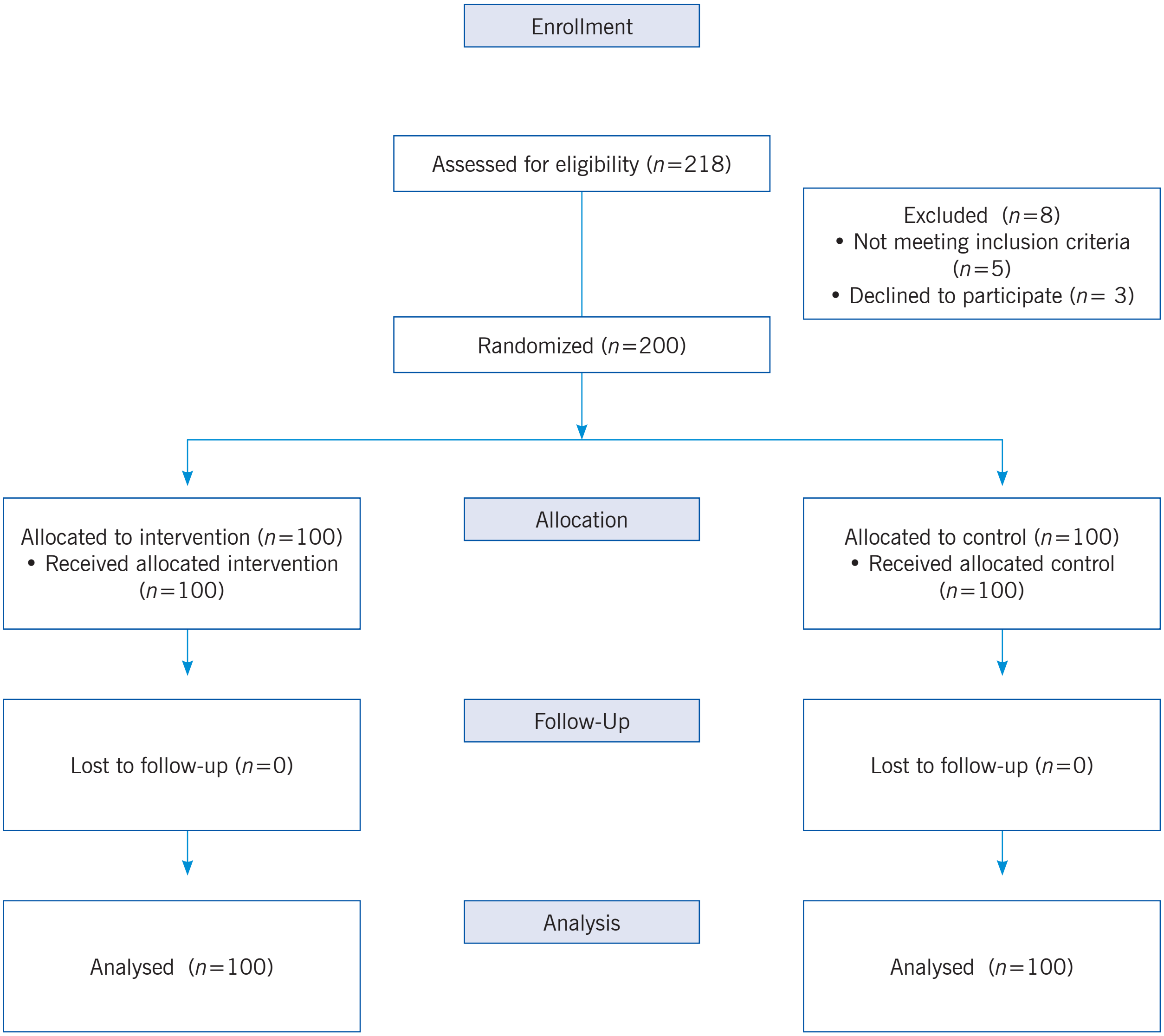
The constructs of the HBM consist of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action. According to this model, a person's decision to adopt a behavior depends on the person's perception and how much they consider themselves to be at risk and prone to disease (perceived susceptibility); then understand the depth of clinical, medical, and social consequences (perceived severity); With the cues and stimuli they receives (cues to action), they believe in the benefits and applicability of preventive behavior (perceived benefits) and finds the factors that prevent the behavior to be low-cost (perceived barriers) and sees himself as capable of performing the preventive behavior (perceived self-efficacy) to finally choose the correct behavior.(13) In this vein, the findings of the studies on applying the HBM model aiming at increasing the physical activity, adopting preventive behaviors from Alzheimer, prove the health promoting self-care behaviors manifesting their efficiency.(14,15) Regarding the ever-increasing widespread occurrence of self-medication in communities, and the direct role of the individual in drug selection and use in order to have a longer life with a fairly healthy and active living, it seems urgent to determine the effective factors on. Therefore, the purpose of the present study is to evaluate the effectiveness of the application of an educational program based on the Health Belief Model (HBM) in Adopting Preventive Behaviors from Self-Medication among Women in Iran.

Methods

The present study is an interventional and semi-experimental one, conducted among women in Urmia in 1398 (2018) with the purpose of applying Health Belief Model (HBM) in adopting preventive behaviors from self-medication of women. Having regarded the previously conducted studies, the prevalence of self-medication was estimated to be 36%,(16) which has been calculated with $\alpha=5\%$, 95% confidence level, and $d=6\%$, on the sample size of 200 people, of which taking 100 for each groups of control and intervention. In the formula, $p=36\%$, $q=64\%$, $d=6\%$ and $z=1.96$.

$$n = \frac{Z^2 * P * (1-P)}{d^2}$$

The sampling was the stratified sampling way performed by referring to the health centers of the city. The samples were selected randomly from women referred to 10 defined health centers, then every one of the centers were placed in the control and intervention groups (5 control centers and 5 intervention centers). The sampling in the clinics was done randomly according to the household codes. The way of sampling in each clinic was simple and random as well, according to the code of the household available at the centers, as these samples were invited to a meeting on a definite day to the health center with the objective of getting acquainted, getting informed of the purpose of the study, as well as receiving the written informed agreement and consent of participation in the study. Inclusion criteria included consent to participate in the study, having a health record at the health center, and not having a specific disease. Exclusion criteria were women who were unable to cooperate. The whole population of people taking part in the present study accounted for 200 people, of whom 18 people didn't fill in the questionnaire, thus more women were added to the study to have 200 accomplished questionnaires at the end.



The data collection instruments include researcher-devised questionnaire including the questionnaire of knowledge of self-medication, the questionnaire of preventive behaviors from self-medication, and the questionnaire of Health Belief Model. The items relevant to each indicated consequences were selected according to the literature review, and to meet the validity and reliability of the questionnaire, the approaches of content validity and Alpha-Cronbach Test were implemented respectively. To measure the validity of the questionnaire, it was sent to 10 experts in the health education and gynecologists, then the necessary modifications were applied on the basis of their comments. The validity was measured to be above 80%. To assess the reliability of the questionnaire, it was responded by 30 women, then by using Cronbach Alpha Test, the reliability coefficient of the questions of Knowledge was set as 0.77%, Perceived Sensitivity 0.75%, Perceived

Severity 0.82%, Perceived Barriers 0.86%, Cues to Action 0.81%, Perceived Benefits 0.84%, and Self-efficiency as 0.76%.

Assessing Knowledge was done in the form of 12 questions with Yes/No/Don't Know options, as the respond of 'Yes' receiving 2 points, 'Don't Know' getting 1 point, and 'No' having zero. The scores of Knowledge Questionnaire varied from zero to 24. Next, the questions and scores of the Health Belief Model include all questions on the basis of Likert scale with three options of "Agree, No Idea, and Disagree". Because of the more complex understanding of the area being assessed, the 'Perceived Sensitivity' had 5 questions with maximum and minimum of 5-15 points, 'Perceived Severity' had 6 questions with 6-18 points, 'Perceived Barriers" had 5 questions 5-15 points, 'Perceived Benefits' having 7 questions with 7-21 points, 'Self-efficiency' having 10 questions 10-30 points, 'Cues for Action' having 7 questions with 7-21 points. To measure the preventive behaviors from self-medication, 10 questions were applying as well, with the options of 'Always Yes', 'Sometimes Yes', and 'No', as the response of 'Always Yes' receiving 2 points, 'Sometimes Yes' with 1 point and 'No' having zero point. The scores of the questionnaire of the preventive behaviors from self-medication varied from zero to 20.

The expected intervention was performed according to the Health Belief Model for the intervention group, including 4 educational sessions for 45 minutes. As the number of the participants in the control group was 100 people, the educational classes were divided into 20 people classes, having 4 educational sessions on the basis of Health Belief Model.

The implemented educational methods were lecturing, asking and answering questions, and group discussion, while in order to assist women's better understanding, to prevent misunderstanding, and to involve their visual learning as its critical importance, other educational equipment and materials like posters, educational pamphlets, booklets and whiteboard were implemented as well. The educational content and materials were prepared on the basis of educational goals, the needs-analysis conducted earlier, and regarding the valid books and pamphlets available, as well as the pharmaceutical monthly magazine titled "Razi", and counselling the pharmaceutical specialists. The first session consisted the history of self-medication, and improving the knowledge of people on self-medication, the next sessions were on the basis of Health Belief Model, including education to raise the severity, self-efficiency, benefits and barriers on the issue, together with external and internal cues to action regarding self-medication or arbitrary use of drugs. It is worthy of noticing that the presented materials were written in a pamphlet and educational manuals submitted to the participants, then were reviewed and summarized the following session briefly.

After the educational intervention, the phone numbers of the participants or their relatives were recorded to being followed up. They were followed up for three months via phone calls, and eventually, after three months, the questionnaires were distributed and the data for both groups were collected again. The Independent T-Test was used to compare the research units on the basis of demographic data of both intervention and control groups. Furthermore, regarding the inference data, statistical T-Test, Paired T-Test, or their non-parametric equivalents like Mann-Whitney Test and Wilcoxon were used to compare the control and intervention groups before and after intervention.

Table1. Educational content on the basis of Health Belief Model regarding self-medication

Sessions (each 45-min)	The title of educational subject	Educational content
Session 1	Knowledge	Knowing about self-medication, self-medication among women, prevalence of self-medication among women, the causes and factors of self-medication, reasons and factors leading to self-medication, preventing ways for self-medication
Session2	Perceived susceptibility	Stating the prevalence frequency of self-medication among women, created physiologic changes in women, increasing the possibility of drug-resistance, feeling the menace of being exposure to disease, feeling the risk of self-medication, feeling the need to modify medication
	Perceived severity	Stating the consequences of self-medication in the physical, psychological, social, and economic aspects, not being able to do the assigned responsibilities after self-medication, cost of medication and hospitalization afterwards, the way of occurrence long-term and short-term complications, highlighting the severity of the consequences of self-medication
Session 3	Perceived benefits	Identifying the benefits of not doing self-medication, expressing the positive effects of preventing self-medication, on each mentioned consequence of self-medication (reducing the medication expenses, preventing the harm and damage, preventing having some disabilities, not being dependent on others, ability to participate in social events, preventing from staying home, the ability to do every day and recreational activities
	Perceived barriers	Trying to persuade the reduction in perceived medication expenses and not self-medication, lectures, discussion and exchange comments on perceived expenses of self-medication with the group members, providing some educational solutions to minimize the perceived expenses, counceling and discussing with the heads of the families on the perceived expenses, persuading them to have enough time to visit the doctor and medication according to the doctor's prescription
Session 4	Perceived self-efficacy	Defining the meaning of the self-efficiency and its significance in preventing self-medication, verbal encouragement to promote the feeling of efficiency, using the ways to enhance self-efficiency including simplifying the behavior, others' experience on modifying the self-medication, providing ways to control time and stress and its significance in promoting the sense of efficiency and preventing self-medication
	Cues to action	Acting according to the advice of the health experts to prevent self-medication, listening to the advice of the husband and relatives to prevent self-medication, listening to the advice of the peers to prevent self-medication. In this session, it was asked the people attending in the session with the experience of self-medication to express their experience and consequences of self-medication.

Results

In this study, 200 individuals were examined in two groups of intervention (100 people), and control (100 people). The mean age and the standard deviation of the age of the participants of the present study in the control and intervention groups were 27.45±12.36 and 26.51±11.46 respectively. Using Independent T-Test showed there is no significant difference between the control and intervention groups in terms of age, marital status, education, career, health insurance, and financial status (Table 2).

The findings of Wilcoxon test show that the mean scores of knowledge, perceived sensitivity, perceived severity, perceived self-efficiency, perceived benefits, perceived barriers, cues to action and action are statistically meaningful in the intervention group after the intervention ($p<0.05$). As the mean scores of these variables has been increased while the results of this test haven't shown any significant differences in the control group before and after the intervention ($p<0.05$). The results of the Mann-Whitney proved the lack of any significant difference between control and intervention groups before the intervention, while the difference was meaningful (Table 3).

Table 2. Demographic features of women in the Control and Intervention groups

Variable	Intervention group n (%)	Control group n (%)	*p*-value
Age			0.2
20-24	30 (30)	32 (32)	
25-39	37 (37)	35 (35)	
30-34	23 (23)	20 (20)	
Above35	10 (10)	13 (13)	
Marital Status			0.3
Married	71 (71)	70 (70)	
Unmarried	11 (11)	14 (14)	
Widowed	18 (18)	16 (16)	
Education			0.4
Illiterate elementary	22 (22)	19 (19)	
Guidance	40 (40)	45 (45)	
Diploma and above	38 (38)	36 (36)	
Career			0.2
Housewife	74 (74)	70 (70)	
Working	26 (26)	30 (30)	
Insurance			0.1
Yes	81 (81)	83 (83)	
No	19 (19)	17 (17)	
Financial Status			0.08
Weak	22 (22)	28 (28)	
Average	54 (54)	52 (52)	
Good	24 (24)	20 (20)	

Table 3. Comparing mean score and Standard Deviation of the variables being studied in Control and Intervention groups

Structure Model	Group	Pre-intervention M±SD	Post-intervention M±SD	p_value*
Knowledge	Intervention	15.82±3.70	20.94±2.60	$p<0.01$
	Control	14.53±3.24	15.34±3.41	0.03
	p_value**	0.57	$p<0.01$	
Perceived susceptibility	Intervention	8.65±3.39	13.95±3.11	$p<0.01$
	Control	8.52±3.52	9.02±3.58	0.09
	p_value**	0.83	$p<0.001$	
Perceived severity	Intervention	9.52±3.31	14.2±2.77	$p<0.001$
	Control	9.48±2.82	10.04±3.22	0.08
	p_value**	0.37	$P<0.001$	
Perceived self-efficacy	Intervention	15.48±3.48	22.18±3.53	$p<0.001$
	Control	15.1±3.51	15.84±3.51	0.2
	p_value**	0.16	$p<0.001$	
Perceived benefits	Intervention	12.29±3.35	17.56±2.83	$p<0.001$
	Control	12.40±3.24	13.04±3.79	0.06
	p_value**	0.12	$p<0.001$	
Perceived barriers	Intervention	11.39±3.47	8.66±3.73	$p<0.001$
	Control	11.54±3.35	10.89±3.87	0.14
	p_value**	0.18	$p<0.001$	
Cues to action	Intervention	14.49±3.57	19.16±3.23	$p<0.001$
	Control	15.44±3.55	16.09±3.47	0.05
	p_value**	0.09	$p<0.001$	
Action on self-medication	Intervention	18.52±3.99	14.71±2.31	$p<0.001$
	Control	15.76±3.4	14.34±2.9	0.01
	p_value**	0.3	$p<0.001$	

(*) Wilcoxon test, (**) Mann-Whitney

In the present study, regarding the variable of "External cues to action", for both groups of control and intervention, social media and the physician had the biggest role in receiving the self-medication of women. On the other hand, "interior cues to action" which encourages the individual to take medicine properly, and non-belief into self-medication (47%), had the highest role in both groups of control and intervention (Table 4).

The findings of the women's performance on taking different medicines in the control and medication groups, before and after the intervention have been shown in percentage. The findings revealed that most drugs women taken through self-medication before the treatment were pain-relievers, cold tablets, and antibiotics, which have been reduced significantly in the self-medication of intervention group after the educational intervention (Table 5).

Table 4. The frequency distribution of internal and external cues to action

Exterior cues to action	Intervention		Control	
	n	%	n	%
RV and radio	24	24	31	31
Book and pamphlet	45	45	40	40
Physician	60	60	65	65
Family and relatives	49	49	45	45
Other mothers referring to health centers	13	13	9	9
Social media	65	65	71	71
Interior cues to action				
Fear of the consequences of self- medication	37	37	32	32
Disbelief in self-medication	47	47	46	46
Favorable general condition	31	31	28	28
Feeling more healthy in self-medication	42	42	35	35

Table 5. the frequency distribution of the self-medication in Intervention and Control groups

Type of the medication	Intervention group		Control group	
	Before	After	Before	After
	n (%)	*n* (%)	*n* (%)	*n* (%)
Pain relievers	61 (61)	27 (27)	62 (62)	60 (60)
Cold tablets	53 (53)	27 (27)	55 (55)	50 (50)
Antibiotics	49 (49)	22 (22)	48 (48)	39 (39)
Folic Acid	36 (36)	16 (16)	37 (37)	34 (34)
Acetaminophen	37 (37)	31 (31)	38 (38)	34 (34)
Iron tablet	29 (29)	23 (23)	28 (28)	26 (26)
Multi-vitamins	18 (18)	8 (8)	20 (20)	19 (19)
Herbal medicines	28 (28)	11 (11)	27 (27)	26 (26)
Antihistamine	16 (16)	12 (12)	14 (14)	13 (13)
Antacid	13 (13)	9 (9)	12 (12)	11 (11)
Sleeping pill	10 (10)	8 (8)	11 (11)	9 (9)
Anti-nausea pill	12 (12)	9 (9)	13 (13)	12 (12)
Blood pressure pill	9 (9)	6 (6)	10 (10)	9 (9)
Antipyretic pill	8 (8)	6 (6)	9 (9)	8 (8)

Discussion

The findings revealed that all components of Health Belief Model had positive meaningful changes after the intervention, being proper indicator of self-medication among women. Furthermore, the social media, physicians and non-belief in self-medication had the biggest role in increasing the knowledge and encouraging to proper use of drugs. Eventually, the findings revealed significant decrease in self-medication of intervention group. In the present study, the knowledge of women has been increased by educating the intervention group. The reason of the difference can be the knowledge of women has been increased by educating the intervention group, which has been in line with what Masoudi Alavi and colleagues,(18) Beijani and colleagues,(19) Xiaosheng Lei.(20) However, there has seen no significant difference in the knowledge scores of the students after the intervention in the study done by Movahed and colleagues.(1) The reason of the difference can be related to the held educational sessions on arbitrary use of the drugs by using different media such as poster, pamphlet, speeches, and slides. Also, the gender and age groups can be the reasons of incompatibility of studies. Therefore, it seems education would be beneficial in modifying people behavior on self-medication.

The perceived sensitivity of women has been increased after the intervention, which is in line with the studies one by Moghadam,(20) Nikbakht,(21) and Kouhpaye(22) as well. Observing the meaningful significant difference between both groups after the educational intervention in several studies can be prove the importance and effect of the educational intervention on improving the perceived severity of pregnant women in the intervention group, as most mothers, after the intervention, believed that they might had experienced self-medication as well. After the intervention, the mean score of the perceived severity on the consequences of the arbitrary use of drugs has increased significantly in the intervention group. This growing perceived severity has been claimed in other studies like the study done on high school boy students in Manojan,(1) and the study done by Niksadat and colleagues,(21) Beijani and colleagues,(18) as well. In the present study, warning on the serious and sever consequences of the self-medication and drawing people's attention on loss of health and high treatment expenses have been the two key factors in improving the level of perceived severity of the sample being studied. In the present study, showing the videos of people suffering from consequences of self-medication, and other scenarios prepared to highlight the seriousness of these consequences, and drawing the attention of the participants to the health loss, occurrence of other diseases, and high treatment expenses result in improving the level of the perceived severity of the sample of the participants in this regard.

In the present study, after the educational intervention, the mean score of the perceived benefits has increased for the intervention group, in line with other studies.(18,23) However, it was not in line with the study done by Movahhed and colleagues,(1) Bakhtiar and colleagues,(24) Torshizi and colleagues,(25) The reason of the difference may lie in the fact that there should be adopted proper educational medium in education, regarding the cultural and social differences of the cases being studied. If people noticed the fact that proper use of the medication can reduce the side effects and accelerate the recovery, their perception on the medicine would increase and they would take them properly according to the instructions, while this would never come true but by using the proper educational methods and various media to express the benefits of appropriate manner.

In the present study, the mean score of the perceived barriers has been reduced after the intervention. Moreover, Bakhtiar and colleagues name the perceived barriers as a strong predictor of the self-medication,(25) while Vahedian-Shahroodi and colleagues stated that the perceived barriers can also predict the behaviors relevant to the Calcium intake. In the study done by Shaghaghi and colleagues, the health care costs, lack of adequate time to refer to the doctor, no accessibility of doctors are regarded as the basic barriers of proper use of the medication. Additionally, the present study was similar to the previous ones, necessitates the importance of planning to decrease the barriers.(26) It seems that the perceived barriers are one of the main components of the Health Belief Model, of which the importance has been elaborated in previous studies, and the proper behavior accelerated by its reduction.

In the present study, the social net workings, the doctors and non-belief in the self-medication as the cues for action had the biggest role in improving the knowledge and encouraging to proper use of the drugs. Also, the study of Patrica(27) was in line with this study, introduced doctors and books as the most important exterior cues to action, but the fear of the consequences of the drugs was regarded as the interior cue to action, which was in contrast with the findings of the present study. However, in the study done by Jalilian and colleagues,(28) previous medication, similar prescription and improved symptoms were the greatest reasons of the self-medication among the participants. In the study of Xiaosheng Lei and colleagues the findings were incompatible with the findings of this study, as the relatives' and friends' recommendations, Internet, papers and magazines were regarded as the cues to action.(19) In the study done by Movahhed and colleagues,(1) more than half of the participants get the medication information from the doctors, read the drug labels, and a few of them introduced TV, magazines and friends as the reference of getting information on appropriate use of drugs. Furthermore, it is in contrast with the study done in Pakistan, through which, 48% of the participants proposed family as the main source of information on the medication.(27) In the study of Gharouni and colleagues(29) it is revealed that 60% of the patients didn't read the medicine brochures at all. It is recommended that the doctors have been implemented as a strong leverage in the educational programs, family and friends should be taken as the appropriate guides and supports as well. Regarding the interior cues to action, it is also highlighted the attention to the perceived threats and the harms caused by the arbitrary usage of the drugs.

The findings of the present study revealed that the self-efficiency has increased after the educational intervention, which is in line with the similar studies.(21,30) Paying the special attention to the self-efficiency in the previous studies indicates its significance in the process of education. In the present study, findings revealed that the women performance in terms of arbitrary use of medication has been decreased. The similar results were also shown in the studies done by Shamsi,(24) and Hosseini (32) and Izadirad(33) by a reduction in self-medication. The results of the present study showed that the most drugs arbitrarily used by women before the educational self-medication were pain-relievers, antibiotics and cold tablets. However, in the studied of Jalilian and colleagues,(30) the painkillers, antibiotics, anti-cough and adult tablets were the mostly-used drugs in self-medication. In the study of Bakhtiar,(24) the diseases of headache (77.3%), pain relievers (76.5%), and the cold (62.1%) had the highest amount of the self-medication. The findings of the present study showed that amount of using the antibiotics and cold tablets are high in the self-medication, thus it is recommended to have monitoring the drugstores to prevent from selling the drugs not prescribed and to educate their proper usage according to the prescription. Additionally, the satisfactory and effective results would be achieved by paying attention to the reasons of the self-medication and taking them in the educational programs in terms of arbitrary drug usage.

Conclusion: The conclusion of this study is that educating on the basis of the Health Belief Model was effective in improving the performance of women referring to the health centers in terms of prevention from the arbitrary use of the drugs. Therefore, it is recommended to have educational intervention by adopting the models of health education, especially, Health Belief Model in preventing and reducing the arbitrary use of the drugs, leading to the improvement in the health behavior of self-medication. Considering the positive effect of training based on the HBM model in preventing self-treatment, the special role of nurses in training and promoting self-treatment literacy based on the model seems necessary. Using this method, nurses can be effective in reducing adverse outcomes and improving women's health. It is recommended to use this educational model as a part of nurses' activities to reduce the problems of hospitalized and treated women.

Strengths and limitations. Implementing the educational model and the type of the study can be regarded as the strengths of the present study. However, the study had limitations including the self-report instrument and limited place, so it ought to be conducted in other settings and places. Additionally, it is recommended to do the research study having the interviews as the data collection instrument. Lack of facilities and supplementary materials, as well as the coordination procedures were regarded as the complexities of the study.

Acknowledgement: The ethics committee of Azad University, Urmia Branch (IR.IAU.Urmia.REC.1395.03) approved the present research. The authors should like to express their gratitude to all the participants.

References

1. Movahed E, Arefi Z, Ameri MJIJoHE, Promotion H. The effect of health belief model-based training (HBM) on self-medication among the male high school students. 2014;2(1):65-72.
2. Rezaei Jaberee S, Aghamolaei T, Mohseni S, Eslami H, Hassani L. Adopting Self-Medication Prevention Behaviors According to Health Belief Model Constructs. Hormozgan Medical Journal. 2020;24(1):e94791.
3. Moradali Zareipour ZMR, Farzaneh Jafari, Sheiyda Ghaderzadh,Monireh Rezaee Moradali. Determinants of Self-Medication Prevention in Women based on the Health Belief Model in Urmia City, Iran. International Journal of Pharmaceutical Research 2020;12(1):908-14.
4. Javadzade H, Mahmoodi M, Sharifirad G, Fakhraee M, Reisi M. Investigation of psychological factors based on health belief model and health literacy on adult Self-Medication in Bushehr province. Journal of Health Literacy. 2020;5(1):39-49.
5. Panchal PJ, Pandya AS, Parmar MR. Knowledge, attitude and practice of self medication among under graduate MBBS students at tertiary care teaching hospital. Headache. 2016;156:96.7.
6. Garofalo L, Di Giuseppe G, Angelillo IF. Self-medication practices among parents in Italy. BioMed Research International. 2015;2015.
7. Behroozpour A, Shams M, Mousavi M, Ostovar R. Reducing self-medication in Iranian women based on health belief model: A brief report. Shiraz E Medical Journal. 2021;22(2):1-4.
8. Jeihooni AK, Jormand H, Ansari M, Harsini PA, Rakhshani T. The effect of educational intervention based on health belief model and social support on testicular self-examination in sample of Iranian men. BMC cancer. 2021;21(1):1-10.
9. Sharifirad G, Pirzadeh A, Azadbakht L. Knowledge and practice in association with self-medication of nutrient supplements, herbal and chemical pills among women based on Health Belief Model. Journal of Research in Medical Sciences. 2011;16(6):852.
10. Tajik R, Shamsi M, Beygee AM. Survey Prevalence of Self Medication and Factors Effected in Woman's Arak City. Scientific Journal of Hamadan Nursing & Midwifery Faculty. 2008;16(1):29-39.
11. Chuwa BB, Njau LA, Msigwa KI, Shao E. Prevalence and factors associated with self medication with antibiotics among University students in Moshi Kilimanjaro Tanzania. African Health Sciences. 2021;21(2):633-9.
12. Sharifi-Rad G, Mohebi S, Motalebi M. Prevalence of self and modifiable factors affecting the health belief model in elderly Gonabad. J Health Sys Res. 2011;7.
13. Hosseinalipour SA, Mohammadbeigi A, Rahbar A, Mohebi S. The Impact of Educational Intervention Based on Extended Health Belief Model With Social Support on Promoting Self-care Behaviors in Patients With Smear Positive Pulmonary TB. Qom Univ Med Sci J. 2021; 15 (5) :312-321.
14. Ghanbary, M. K., Shamsi, M., Khorsandi, M., Farazi, A., Ranjbaran, M., & Eshrati, B. (2015). Effect of training with teaching methods designed based on health belief model on knowledge and self-efficacy in nurses on the disciplines standard precautions in hospitals. Journal of human health, 1(2), 51
15. Khavoshi N, Tol A, Shojaeizade D, Shamshiri A. Effect of educational intervention on the lifestyle of elderly people referred to clinical centers of Eslamshahr, Iran: application of health belief model. 2 Journal of Nursing Education. 2015;3(4):19-28.
16. Shamsi M TR, Mohammad Beigi A. Study, to oADUamr, University hcoAhM, 39-29 J.
17. Masoudi Alavi N, Izadi F, Ebadi A, Hajbagheri AJIJoE, Metabolism. Self treatment experience in diabetes mellitus type 2. 2019;10(6):581-8.
18. Bijani M, Haghshenas A, Ghasemi AJIJoPR. Evaluation of the effect of education based on health belief model on self-therapy and self-medication in students at fasa medical sciences dormitories. 2019;11(3):1732-9.
19. Lei X, Jiang H, Liu C, Ferrier A, Mugavin JJIjoer, health p. Self-medication practice and associated factors among residents in Wuhan, China. 2018;15(1):68.
20. Moghadam SMK, DS, MM, ES, HF, SK. Effect of education based on health belief model to prevent the arbitrary use of the drug in women referring to Health Centers sabzevar city. 2. 2017;9(14):1876-88. eng.

21. Niksadat N, Solhi M, Shojaezadeh D, Gohari MRJRJoMS. Investigating the effect of education based on health belief model on improving the preventive behaviors of self-medication in the women under the supervision of health institutions of zone 3 of Tehran. 2013;20(113):48-59.
22. Kouhpayeh A, Jeihooni AK, Kashfi SH, Bahmandoost M. Effect of an educational intervention based on the model of health beliefs in self-medication of Iranian mothers. Investigacion y educacion en enfermeria. 2017;35(1):59-68.
23. Ghodsi H, Mokhtari Lake N, Asiri S, Kazem Nezhad Leili EJJoHN, Midwifery. Prevalence and correlates of cigarette smoking among male students of Guilan□ University of Medical Sciences□. 2018;22(1):38-43.
24. Shamsi M, Hidarnia A, Niknami S, Rafiee M, Zareban I, Karimy M. The effect of educational program on increasing oral health behavior among pregnant women: Applying health belief model. Health Education and Health Promotion. 2013 ;1(2):21-36. 25. Torshizi L, Anoosheh M, Ghofranipour F, Ahmadi F, Houshyar-rad AJIJoN. The effect of education based on Health Belief Model on preventive factors of osteoporosis among postmenopausal women. 2019;22(59):71-82.
26. Shaghaghi A, Asadi M, Allahverdipour HJIjoph. Predictors of self-medication behavior: a systematic review. 2014;43(2):136.
27. Patricia J, Neafsey R, Olga J, Surheil LJHHCI. Self medication practice in spanish speaking older adults. 2007;5(4):169-78.
28. Jalilian F, Mehdi Hazavehei S, Vahidinia AA, Jalilian M, Moghimbeig AJJorihs. Prevalence and related factors for choosing self-medication among pharmacies visitors based on health belief model in Hamadan Province, west of Iran. 2013;13(1):81-5.
29. Gharouni K, Ardalan A, Araban M, Ebrahimzadeh F, Bakhtiar K, Almasian M, et al. Application of Freire's adult education model in modifying the psychological constructs of health belief model in self-medication behaviors of older adults: a randomized controlled trial. 2017;20(5):71-8.
30. Zareipour MA, Mahmoodi H, Valizadeh R, Ghorooji MG, Moradali MR, Zare F. impact of an educational intervention based on the BASNEF model on skin cancer preventive behavior of college students. Asian Pacific journal of cancer prevention: APJCP. 2018;19(10):2717.32.3
31. Heidarnia AJJoAUoMS. Factors influencing self-medication among elderly urban centers in Zarandieh based on Health Belief Model. 2016;14(5):70-8.
32. Hosseini FS, Joveini H, Jahromi VK, Sharifi N. Prevention of Self-medication in Women of Reproductive Age Based on a Health Belief Model: A Quasi-experimental Study. Journal of Education and Community Health. 2022;9(1):18-25.
33. Izadirad H, Niknami S, Zareban I, Hidarnia A. Improving prenatal care in pregnant women in Iranshahr, Iran: Applying Health Belief Model. Women & Health. 2018;58(10):1167-78.

Original article

Adaptation by Men to the Nurse Role. “Being Craftsmen in the Construction of their Professional Trajectory”

Sandra Milena Velásquez Vergara[1,5]
https://orcid.org/0000-0002-7581-4397
María Elisa Moreno Fergusson[2,6]
https://orcid.org/0000-0003-4037-6590
Edgar Orlando Arroyave Álvarez[3,5]
https://orcid.org/0000-0002-4117-3552
Jasmín Viviana Cacante Caballero[4,5]
https://orcid.org/0000-0002-0886-7536

Adaptation by Men to the Nurse Role. “Being Craftsmen in the Construction of their Professional Trajectory”

Abstract

Objective. This work sought to describe the adaptation process by men to the nurse role. **Methods.** Secondary analysis of data from a collective case study that had as participants 12 male nurses working in the city of Medellín, with ages between 28 and 47 years and average time of professional experience of 11 years. Information collection was carried out through in-depth interviews. The analysis was conducted through Roy’s Adaptation Model (RAM), reading of the interviews, identification of RAM’s components, grouping of fragments, assignment of tags, construction of a matrix and classification. **Results.** The analysis performed accounts for the coping processes and adaptation by male nurses and the ineffective responses (control of emotions and emotional silencing) when practicing a role considered feminine. **Conclusion.** In this study, it was possible to establish that, to achieve

---

1 Nurse, PhD candidate. Professor.
E-mail: sandra.velasquez3@udea.edu.co
2 Nurse, PhD. Professor.
Email: mariae.moreno@unisabana.edu.co
3 Psychologist, PhD. Professor.
E-mail: edgar.arroyave@udea.edu.co
4 Nurse, PhD. Professor.
E-mail: jasmin.cacante@udea.edu.co
5 Universidad de Antioquia, Medellín (Colombia)
6 Universidad de la Sabana, Chía (Colombia)

Conflicts of interest: None
Received: 8 April 2022.
Approved: 5 October 2022.
How to cite this article: Adaptation by Men to the Nurse Role. “Being Craftsmen in the Construction of their Professional Trajectory”. Invest. Educ. Enferm. 2022; 40(3):e12.
DOI: https://doi.org/10.17533/udea.iee.v40n3e12.

Investigación y Educación en
Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

adaptation within nursing, men use strategies related with changes in bodily appearance, management of physical strength, and management of emotions.

Descriptors: men; masculinity; gender identity; education, nursing; nurses; male; professional practice.

La adaptación de los hombres al rol de enfermero. "Ser un artesano en la construcción de su trayectoria profesional"

Resumen

Objetivo. Describir el proceso de adaptación de los hombres al rol enfermero. **Métodos.** Análisis secundario de los datos de un estudio de casos colectivo que tuvo como participantes a 12 enfermeros que trabajan en la ciudad de Medellín, con edades entre los 28 y los 47 años y un tiempo de experiencia profesional promedio de 11 años. La recolección de la información se realizó mediante entrevistas en profundidad. El análisis se realizó a partir del Modelo de Adaptación de Roy (RAM), lectura de las entrevistas, identificación de los componentes del RAM, agrupación de fragmentos, asignación de etiquetas, construcción de una matriz y clasificación. **Resultados.** El análisis realizado da cuenta de los procesos de afrontamiento y adaptación de los enfermeros y las respuestas inefectivas (control de emociones y silenciamiento emocional) al ejercer un rol considerado femenino. **Conclusión.** En este estudio fue posible establecer que, para alcanzar una adaptación dentro de la enfermería, los hombres utilizan estrategias relacionadas con cambios en la apariencia corporal, el manejo de la fuerza física y el manejo de las emociones.

Descriptores: hombres; masculinidad; identidad de género; educación en enfermería; enfermeros; práctica profesional.

A adaptação do homem ao papel de enfermeiro. “Ser artesão na construção da sua carreira profissional”

Resumo

Objetivo. Descrever o processo de adaptação do homem à função de enfermagem. **Métodos.** Análise secundária de dados de um estudo de caso coletivo que teve como participantes 12 enfermeiros que atuam na cidade de Medellín, com idade entre 28 e 47 anos e tempo de experiência profissional média 11 anos. As informações foram coletadas por meio de entrevistas em profundidade. A análise foi realizada por meio do Modelo de Adaptação de Roy (RAM), leitura das entrevistas, identificação dos componentes do RAM, agrupamento de fragmentos, atribuição de rótulos, construção de matriz e classificação. **Resultados.** A análise realizada dá conta dos processos de enfrentamento e adaptação das enfermeiras e das respostas ineficazes (controle das emoções e silenciamento emocional) ao exercer um papel considerado feminino. **Conclusão.** Neste estudo foi possível constatar que, para conseguir uma adaptação dentro da enfermagem, os homens utilizam estratégias relacionadas a mudanças na aparência corporal, manejo da força física e manejo emocional.

Descritores: homens; masculinidade; identidade de gênero; educação em enfermagem; enfermeiros; prática profissional.

Introduction

The concept of role has different definitions in disciplines, like psychology, sociology, anthropology, philosophy, among others; in this sense, the terminology used can vary. Considering the foregoing, it must be clarified that, this text, retook the sociological definition of role, which refers to the guidelines and behaviors society imposes and expects from an individual under certain situations; nevertheless, regarding the social expectations derived from the role each individual plays, these face a series of contradictions and ambiguities, characteristic of social systems and of their concrete operations.(1) Particularly, in the sexual division of work, said contradictions are related with stereotypes, given that while masculinity is associated with strong, extenuating, unhealthy and often dangerous activities, femininity is equivalent to light, delicate and clean work, which demands patience, abnegation, and dedication.(2) This conception has permeated, to a great extent, the bases of a gender system that has accompanied the health professions, specifically nursing, where the male presence has been proportionally lower.(3)

For a male, performing a role considered historically feminine is not an easy task, given that it goes against the roles and functions socially accepted by the sex-gender system, which represents the binary and grants distinct qualities to men and women; an example of this is the traditional reason-emotion dichotomy to name that considered masculine or feminine. In this sense, it is expected for men to demonstrate publicly technical, physical, and rational competences, while empathy, compassion, and commitment related with caring for another human being, as in nursing, are actions that can be interpreted as signs of weakness, frailty, and lack of character.(4) In an heteronormative society, men who choose nursing as a professional option are exposed to not only a permanent justification of their decision, but also to shame and social signaling due to performing a role that supposedly does not correspond with what is established.(5) The aforementioned, according with Axel Honneth,(6) degrades the social value of certain forms of self-realization, with consequences in the self-esteem and self-confidence of those engaged in practices different from those assigned socially. Hence, the importance of knowing the different stimuli to which men are exposed from the moment they decide to study nursing and during the professional training with the objective of favoring work adaptation.

According with Callista Roy,(7) adaptation is defined as the *process and result through which people think and feel as individuals or in groups, using awareness and conscious choice to create human and environmental integration*. For Roy, human beings are holistic adaptive systems in continuous interaction with a changing environment, whose point of interaction are the stimuli the author classifies into: focal (the most immediate in the individual's conscience and which trigger a coping response); contextual (which contribute to the focal stimulus, but are not the center of attention or energy); and residual (which are environmental factors, whose influence on the individual's current condition is unknown).(7) Said stimuli, according to Roy,(7) upon coming into contact with the person, trigger responses to the coping processes that can be adaptative or inefficient, which are manifested into four modes of adaptation: physiological, self-concept, function of the role, and interdependence, but due to their relevance with the phenomenon of interest in this study, only the third of these was addressed. This article was conducted with the objective of knowing the adaptation process by men to the nurse role.

Methods

This text resulted from the PhD thesis by the principal researcher, titled "*The Role of Men in Nursing, its Recognition and the underlying Emotions in the Exercise of their Professional Practice in the City of Medellín".* The approach method was the secondary analysis of data from the methodological proposal by Ruggiano and Perry, a strategy that permits examining questions different from the primary study and interpreting the information retrospectively and – in this sense – answering questions different from those of the principal research.(8) That is why, in light of Roy's theory, the researchers inquired on the antecedents linked to the election of the professional role, the experiences during the professional formation, and the adaptation strategies.

Selection of participants. The study had the participation of 12 male nurses between 28 and 47 years of age, with educational levels ranging from undergraduate to PhD training and with performance in different job areas. The sampling process was initially selective and intentional and was conducted through phone calls to the first eight male nurses who were exercising their profession in the city of Medellín (Colombia), which, through knowledge by the principal author, were known to be key participants who complied with the eligibility criteria: male gender with two or more years of professional experience. Only one male nurse was excluded because he reported that he was working outside the country. After this, and through the snow-ball strategy, according to which the first participants referenced others interested in being part of the study, four additional male nurses were invited to participate to refine the initial emerging themes, until reaching theoretical saturation.(9)

Data generation process. The data generation technique used was the in-depth interview. The meetings were held virtually due to the confinement imposed by the Colombian government starting 15 March 2020 because of the COVID-19 health contingency. This required prior coordination with each of the participants to schedule the interview, which was carried out through phone calls and teleconference meetings using the Google Meets platform, seeking optimal audio and video conditions to have a broad, sustained, fluid and natural dialogue. Each meeting lasted approximately one and a half hour. The interviews were audio recorded, with prior authorization from each participant through the informed consent, and later were transcribed literally in the Microsoft Word® text processor, looking to do so as soon as possible.

Analysis and interpretation process. The analysis process began by reading each of the interviews to identify the thematic declarations by the participants to, therein, extract the relations among the themes.(10) The work obtained 1 511 descriptions as a result of the analysis of the 12 interviews, which derived into six themes upon completing the analysis process. The foregoing was conducted through a detailed reading and construction of a conceptual map, visual tool that supported data classification and permitted discovering the interrelations existing among the emerging themes. Upon completing the analysis of the first two themes, the authors reviewed the Adaptation Model by Callista Roy(7) and read the data collected during the interviews and field diaries of the primary study and extracted those fragments related with the adaptation process by the male nurses when choosing their profession and during their university formation. The selection of the fragments chosen was discussed by the whole research team and, then, the narrative excerpts were classified according to how they corresponded to the central components of Roy's model: stimuli, coping processes and behaviors or responses of situations related with their professional role.

Rigor criteria. The reflexive process was present during the interviews, generation, and data analysis. In this sense, the findings were reviewed permanently by the research team, to comply with the rigor criteria during the analysis in terms of credibility, transferability, and verifiability.(11)

Ethical considerations. The study was approved by the Research Ethics Committee of the Faculty of Nursing at Universidad de Antioquia, who classified it as minimum-risk research according to that established in Resolution N° 008430 of 1993 in Colombia.(12)

Results

The study had the participation of 12 male nurses working in the city of Medellín, ranging in age between 28 and 47 years and average time of 11 years of professional experience (Table 1).

The adaptation process by the men to the role of male nurses was carried out in light of Roy's Adaptation Model (RAM), which included stimuli, coping processes, and responses in the four adaptative modes (Figure 1).

Table 1. Characterization of study participants

Code	Age	Years of experience	Last degree obtained	Work area
Participant 1	33	10	M.Sc. in Mental Health	Teaching
Participant 2	32	6	Male nurse	Clinical Care
Participant 3	47	21	M.Sc. Administration	Administrative
Participant 4	36	14	Ph.D. in Nursing	Teaching
Participant 5	38	16	Ph.D. in Nursing	Teaching
Participant 6	31	2	M.Sc. in Nursing	Clinical Care
Participant 7	45	9	M.Sc. in Epidemiology	Clinical Care
Participant 8	35	14	Male nurse	Clinical Care
Participant 9	38	11	Male nurse	Home care
Participant 10	44	5	Male nurse	Clinical Care
Participant 11	28	4	Male nurse	Community care
Participant 12	43	20	MSc. in Nursing	Administrative

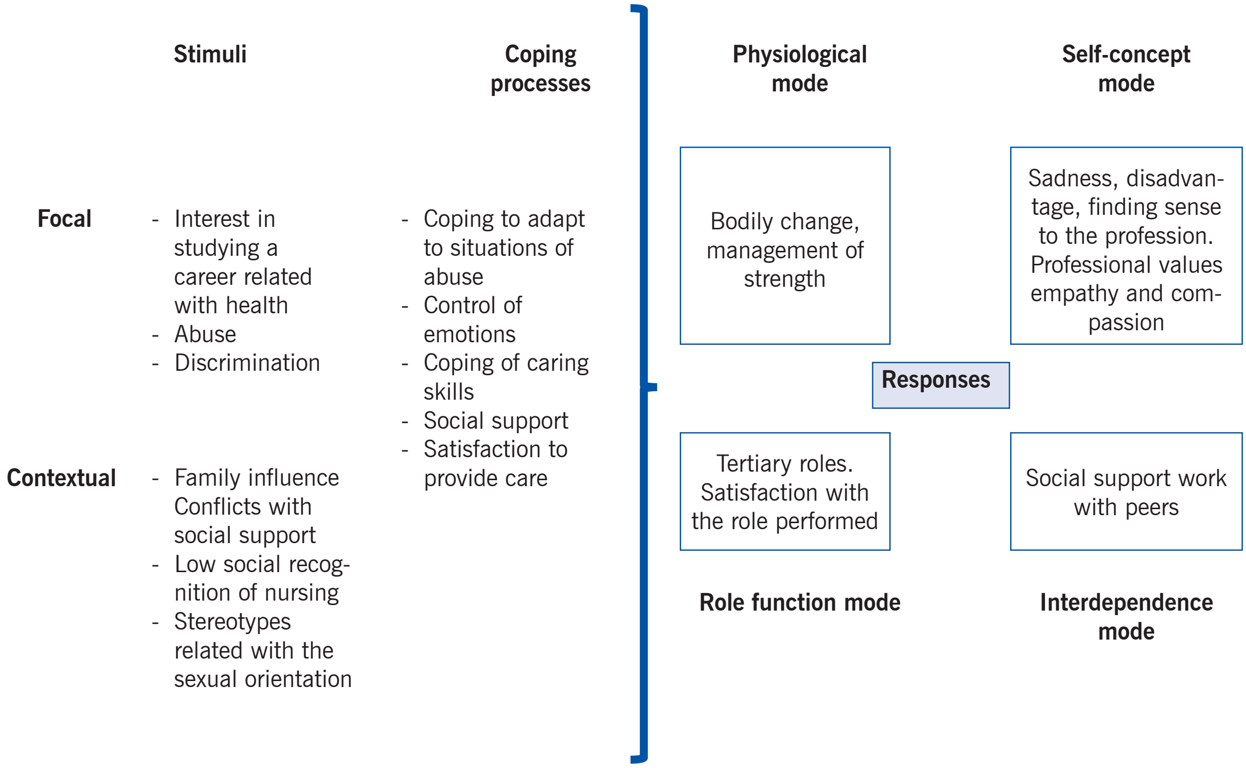


Figure 1. Adaptation process by the men to the role of male nurses

The following describe the elements of Roy's adaptation process.

Stimuli

Upon analyzing the interviews, the focal stimuli identified three themes; the first of these was the **interest in studying a profession related with the health area**. This was expressed by one of the participants: *I was always clear that the profession I was going to choose had to be one where I could have direct contact with people and be useful to society* and *in Nursing, I found that possibility* (Participant 1). The other two stimuli identified were **abuse and discrimination**, which are related with the situations to which the participants were exposed in different social and academic scenarios for choosing a predominantly feminine career, which led them to even contemplating the idea of abandoning the profession. As expressed by one of the male nurses who during his academic formation had difficulties with one of his professors: *That professor is very tough, very demanding, but quite primary to say things, and one day she swept the floor with me. That was something crazy, so much so that I almost quit* [...] (Participant 9).

Similarly, another one of those interviewed faced disapproval from people close to him: *when I said I had gone into nursing, the philosophy professor stated in public that he did not understand how a person with the opportunity to study something important had chosen to clean asses* (Participant 11). In addition, the contextual stimuli identified four themes: family influence, conflicts with social support, social recognition of nursing, and social stereotypes.

Family influence is related with the family influence on the professional choice, a situation considered by some with a genetic trait due to its hereditary nature. Illustrating the aforementioned, one of the study participants stated that nursing is something that is *carried in the blood, like a family inheritance; it's like a legacy. In my family, we have people who have been dedicated to this* […] (Participant 2).

Another example of contextual stimuli is **conflicts with social support**, which is reflected on relating with friends, professors, and parents, who are unaware of the scope of nursing and have pejorative expressions in relation to it. One of the participants shared what he felt when he told one of his friends of his professional choice professional: *I had an ugly brush, the man is an engineer and he told me: why are you going to study that?, knowing that you as a male nurse will dedicate yourself to cleaning* […] *you can imagine what* (Participant 10).

Likewise, another male nurse remembered that during the professional formation, he found resistance in female professors; *they told me openly: men are not good for that, they often stated* (Participant 9). In turn, another man interviewed said that, although his mother supported him during his academic formation, she did not agree with his professional choice, given her expectations focused on another trade: *I left the community, and I continued studying nursing and my mother did not like the idea because she wanted me to be religious* (Participant 7). Also, during the dialogues analyzed, it was established that another contextual stimulus is related with **low social recognition of nursing**. For one of the participants, *the nurse role in our society is regrettable, it is sad* […], *we had to be in the middle of a pandemic so that as professionals we were visible and valued a little more* […] (Participant 9).

Lastly, in the contextual stimuli, the second reading of the interviews permitted identifying that for the participants **the stereotypes related to the sexual orientation** continue to be valid for choosing a profession like nursing: *at social level, when people see you as a male nurse, they generally judge you and ask themselves if your sexual condition is or isn't defined,* get me?, *people ask if you are or are not, right away, they associate you with a homosexual individual* (Participant 8). A similar situation to that expressed by another male nurse: *a relation starts to be made of the discipline with certain stereotypes*, so […] *one hears out there, people saying: nursing is no longer only for women, nursing is also for gays, not to say the other word!* (Participant 5).

Coping processes

This section presents some situations faced by male nurses during different stages of their lives where nursing has been present and in which it may be seen how the coping process takes place in function of the adaptation to situations of abuse, control of emotions, development of care skills, search for social support and satisfaction by providing care.

With regard to **coping to adapt to situations of abuse**, one interviewee reported that since an early age he had to confront violence and poverty, which is why when choosing his profession, he thought: *I want to be a male nurse so I won't be afraid to look at reality in the face* (Participant 11). In the same sense, another participant stated that one of the strategies to face abuse during his university formation was *to try to understand the women professors and not judge them, but he did see female professors who lived with a certain anger against men, like with resentment* (Participant 9).

With respect to the **control of emotions** by the participants, one of the male nurses manifested that when he was studying, he was providing care to *an adult who was almost 90 years old with Alzheimer's, I did not know what to do with* *that old man, and I started to cry* […]*; but the hardest part for me was that I felt I had to cry in silence*" (Participant 4).

Related to the theme of **coping of care skills**, one of the participants expressed that during his training he developed skills for neonatal care defying his own fears; *I was very rough, and taking these children so young gave me a lot of difficulty, but I said: I have to learn to handle these little kids, and I learned to manage my strength and to manipulate them; for me, it was something quite significant because – in spite of my male condition – I had been able to do things that were like more delicate* (Participant 4).

For **social support**, it was possible establish that during the professional formation, for men to adapt, they recur to social support and to the construction of empathic relations with classmates and professors. *Fortunately, I found professors who told me: you are capable, you have the same capacities. Go ahead!* (Participant 9). Along with the foregoing, it was possible to identify within the analysis **the satisfaction by providing care**. This was so expressed by one interviewee: *amid so much work, the most comforting thing happens when someone you don't know turns to you and says some nice words* [closes his eyes and sighs]*: you are like a son! What you experience and what you feel at those moments is a very beautiful thing* (Participant 10).

Adaptative responses

During the analysis, it was found that men in nursing choose certain areas as adaptative response to the profession; this fact evidences not only adaptation to a role different from that allowed by hegemonic masculinity, but the persistence of the sexual division of labor within the profession. For two of those interviewed, *men look for areas where they can have certain power* (Participant 12), *they look for areas where their work is recognized more* (Participant 2).

The **physiological mode** discovered that, to adapt to a specific role, some of the participants opted for changing their bodily structure, to have the musculature and sufficient strength to attend to situations of care that required it. One of them shared his experience: *about the physical strength, it is a generalized matter and I think that precisely due to that pressure I started to get fat, I was very skinny, and I would ask myself: how will I get on top of that patient to restrain him? So, I started to eat more at night* (Participant 1). Similarly, another participant reported that when he was a student, his role was related with physical strength: *for example, with an aggressive patient, bring the men to help restrain him! Or, if he is going to fight, to grab him; or, if the patient has to be moved: bring the men* [sarcastic tone of voice] […] (Participant 4).

In the **self-concept mode**, the narratives by the participants evidence situations that caused feelings of sadness, worthlessness, and frustration, as well as a motive to reflect upon their lives and future plans focused on serving others: *I was in a hospital alone, with pain, cold,* […] *I spent the time crying and I would say: I don't want other people to go through this situation, I want to be that person that can help others* (Participant 6).

In the **role function mode,** male nurses from the interaction with other professionals during their academic formation stage find sense to their professional choice and are seen as role models, independent of their gender. This happened to one of the male nurses: *my female professor put on gloves, stabilized the patient and got everyone working. When I saw the patient well, recovered, I looked at my professor and said: hey, that is what someday I imagined I wanted to see, that is what I want to be* (Participant 4). In that same sense, another participant recognized values and attitudes characteristic of the role of a male nurse. For him, *what really defines nursing professionals is the responsibility, honesty, and passion they have to place at the service of other people their knowledge and skills* (Participant 8).

Together with the aforementioned, it was possible to identify within the analysis that the participants assume tertiary roles in the day-to-day, often associated with personal and social expectations around their roles as male nurses.(13) This was, thus, stated by one of the men interviewed: *in your work you have to act as a counselor, as a priest [smiles], even as a doctor.* […] *to be able to help the patient* (Participant 10).

Among the adaptative responses identified during the analysis, there was evidence of the satisfaction experienced daily by male nurses, when their work is recognized: *It fills me with joy and satisfaction that they tell me: I love that nurse because he helped my grandma!* […] *It makes me vibrate by the fact of curing a patient, of helping another* (Participant 9). Similarly, one of his colleagues stated that for him the most important thing is *to provide quality care, for it to be a good experience for the person* (Participant 6). Another example of adaptative response to the role function was exemplified by one of the participants, who in his work trajectory has managed to perform in unconventional contexts for a male nurse, like working with homeless people: *as a professional, you have to be resourceful, my work was hard, it was necessary to be out in the sun, we did not have many elements to provide care: I would sometimes sit on a rock to care for the people* [smiles] (Participant 11). In this report, fundamental attributes of the person are noted to meet the needs of users, such as courage to face difficulties, resourcefulness, and persistence.

Finally, in the **interdependence mode**, the participants made known the support networks they had available when they chose nursing. For some of them, it was very significant to have the support from women close to them (mothers, sisters, female friends). One of the male nurses expressed it thus: *in my house, we are four siblings, my older sister is a respiratory therapist; she liked the idea and agreed that I should enter the university* (Participant 4). Another male nurse, is thankful for the support received from his mother; *she is the one who urged me most. I am what I am because of my mom* [sighs]; *that is the truth in my life* (Participant 10). To the aforementioned, we can add the statement by another interviewee: *looking precisely for networks and support, I have gone to the university because I still have female professors who are friends, because one only sees the possibility of accompaniment* (Participant11).

With respect to interpersonal relations, some of the participants said that it is more difficult to work with female colleagues because they are emotional, complicate processes, and are competitive, as stated by this participant: *it is much easier to work with men than with women; male nurses are less emotional and less competitive than women* (Participant 2). In the same sense, another interviewee indicated that *a man does not complicate his life too much; that is even noticed during the change of shift* (Participant 6).

Discussion

The second analysis performed in light of Roy's theory permitted identifying within the focal stimuli that men – due to their professional election – continue facing social prejudice and stereotypes, which, according with Gugel and Lima,(14) are a product of discursive practices that tend to associate women as natural caregivers. These biases, according with Burguette M *et al*.,(15) not only bring as consequence exclusion and limited participation by men in nursing, but also contribute to perpetuate gender inequality.

Upon analyzing the participants' experiences, according with that proposed by Roy,(7) it is possible to affirm that the situations of abuse during the training can generate ineffective responses, feelings of sadness and impotence that affect self-esteem, self-consistency, and self-concept, given that the last is formed from the combination of beliefs the subjects have of themselves and of the perceptions of others, thus, guiding individual behaviors.

With respect to the abuse received by the students, Ayala(16) proposes that these could be explained, largely due to a condition called submissive aggression syndrome, where nurses guide actions of violence toward their disciples with the desire to achieve recognition and maintain a high professional standard within a competitive and voracious market.

Moreover, among the contextual stimuli, this study identified conflicts with social support, given that according to some of those interviewed, people close to them (parents, friends, professors) did not agree on their opting for a feminine profession. In relation with the foregoing, Peña *et al*.,(17) consider that barriers and social supports an individual receives, besides helping or hindering the possibility of reaching academic achievements and personal goals, influence upon the beliefs they have on their capacity to help successfully in a vocational field and in their aspirations to comply with the desired objective.

Furthermore, Labra *et al*.,(18) indicate that men tend to specialize in areas of greater prestige and autonomy consistent with masculinity and avoid performing in areas associated with maternity and femininity, and instead, look for areas where they have little physical contact with others and access to technology with the purpose of masking feelings of compassion and dedication, which could be interpreted as a sign of weakness.(19) The findings permit affirming that although certain characteristics were evident that are related with hegemonic masculinity, the participants develop different coping strategies that allowed their promoting adaptation to their role of male nurses, which, according with Roy,(7) emerge from spontaneous responses that enable wellbeing, satisfaction, and adaptation in their contexts, which for the specific case of this study, was evidenced in the control of emotions, development of care skills, and search for social support.

Upon analyzing the responses in the adaptation modes proposed by Roy,(7) it was possible to determine in the participants, in the role function mode, changes related with bodily appearance, management of physical strength, and management of emotions. The foregoing, according with Ritxar Bacete,(20) is related with social beliefs from heteronormativity, which indicate that a true man has physical toughness and emotional control that translates into the prohibition of public manifestations of affection and into emotional silencing. Along with this, from the reports by those interviewed, it was possible to establish, in the role function mode – as proposed by Roy,(7) that to comply adequately with their role as male nurses, the participants choose tertiary roles, like acting as a priest, counselor, or physician, which are not only associated with social expectations, but also with the compliance of their responsibilities to provide comprehensive care.

Another important finding in the study regarding the self-concept mode is related with what nursing has inherited, which, according with historian Ana Luisa Velandia,(21) have influenced on its evolution, being precisely the female issue the most significant and which – in turn – has been linked to the values of the Catholic relationship, hence, female characteristics are strongly related with those expected of a nun: submission, obedience, abnegation, kindness, softness, subtlety, among others.

Likewise, and with respect to self-concept, the participants – in spite of being from the male gender – have values, like empathy, compassion, and the desire to help others, which was evident even before entering the university. In this sense, supported on Sara Ahmed,(22) it may be stated that emotions are constructed in interaction with others and that these are not related with gender.

Conclusion. After the secondary analysis in which RAM was used, it was possible to establish that for men to achieve adaptation within nursing, they reconcile their emotions in different spheres (family, academic, work), given that the fact of expressing them openly may be interpreted as sign of weakness or frailty. Likewise, the strategy used permitted identifying focal and contextual stimuli that can be interpreted as obstacles within the adaptation process to the role, not only during the professional formation stage, but also the work stage, due to the stereotypes that remain in effect at social level. In consideration with the aforementioned, it is pertinent to continue investigating about the difficulties of male nurses since their university formation to the exercise of their professional work and on the adaptation strategies they undertake during said stages, so that greater scientific evidence may be obtained to permit developing intervention strategies based on the experiences, needs, and expectations of the male nurses.

Study limitations. The COVID-19 pandemic limited the data collection to the virtual scenario, which did not permit detecting other contents, like non-verbal language in its natural environment. Moreover, considering the scope of the qualitative research and of the hermeneutic approach, the results are not generalizable in population terms, so we are invited to read the findings within the context and time in which they were constructed.

Acknowledgments. The authors thank Universidad de la Sabana for facilitating the space for the internship of the main researcher, which allowed delving into the theoretical concepts of the Adaptation Model by Callista Roy.

References

1. Barquet J, Vázquez J. Aproximación a la teoría de la performatividad desde Judith Butler. ScientiAmericana. 2021; 8(2):51-60.
2. Scarafoni ME. División sexual del trabajo doméstico y el uso del tiempo en las tareas de cuidado. DerSocial.2016; (14):127-36.
3. Fernández-Feito A, Basurto-Hoyuelo S, Palmeiro-Longo M, García-Díaz, V. Differences in professional values between nurses and nursing Students: a gender perspective. Int. Nurs. Rev. 2019; 66(4):577-89.
4. Ashkenazi L, Livishz-Riven I, Rommen P, Grinstein-Cohen O. Male Nurses in Israel: Barriers, Motivation, and How They Are Perceived by Nursing Students. J. Prof. Nurs. 2017; 33(2): 162-9.
5. Tian X, Deng Y. "Organizational Hierarchy, Deprived Masculinity, and Confrontational Practices: Men Doing Women's Jobs in a Global Factory". J. Contemp. Ethnography. 2017; 46(4):464-89
6. Honneth A. Reconocimiento y menosprecio sobre la fundamentación de una teoría social. Buenos Aires: Katz Editores; 2010. p. 23-35.
7. Roy C. Elements of the Roy Adaptation Model. In: Roy C. The Roy Adaptation Model. New Jersey. Third Edition: Upper Saddle River (NJ): Pearson Education; 2009. p. 25-54.
8. Ruggiano N, Perry T. Conducting secondary analysis of qualitative data: Should we, can we, and how? Qual. Soc. Work. 2017;18(1):81-97.
9. Curtis S, Gesler W, Smith G, Washburn S. Approaches to sampling and case selection in qualitative research: examples in the geography of health. Soc. Sci. Med. 2000; 50(7-8):1001-14.
10. Stake R. Analysis and Synthesis. How Things Work. In: Qualitative Research Studying How Things Work. First Edition. New York: The Guilford Press; 2010. p. 133-56.
11. Viorato N, Reyes V, Bernal M. La Ética en la Investigación Cualitativa. CuidArte. 2019; 8(16):35.43

12. Ministerio de Salud. Resolución 008430 [Internet]. Bogotá 1993. [Internet]. [Consulted 15 Sept. 2021]. Available in: https://bit.ly/3tvMurF.

13. Roy C. Synthesis of Middle Range Theory of Adapting to Life Events. In: Generating Middle Range Theory from Evidence to Practice. New York: Springer Publishing Company; 2014. p. 233-52.

14. Gugel S, Duarte C, Lima A. Valorização da enfermagem brasileira: analisando aspectos históricos e de gênero. Nursing. 2020; 23(264):3930-3.

15. Burguette MD, Martí G, López J, Martínez JR. Acceso a los estudios de Enfermería en función del sexo de los estudiantes. Rev ROL Enferm. 2018; 41(7-8):534-42.

16. Ayala R. Biopoder: el poder y la violencia en la formación de profesionales de enfermería. Educ. Med. 2008; 11(3):125-9.

17. Peña J, Inda C, Rodríguez Menéndez M. La teoría cognitivo social de desarrollo de la carrera: evidencias al modelo con una muestra de estudiantes universitarios de la rama científica. Bordón. 2015; 67(3):103-22.

18. Labra O, Bergheul S, Turcotte P, Dubé N. Men Studying in Professions Conceptualized as Female in Quebec. GKA revSOCIAL 2017; 6(1):1-10.

19. Cottingham M. Caring Moments and Their Men: Masculine Emotion Practice in Nursing. NORMA. 2017; 12(3-4):270-85.

20. Bacete R. ¿Por qué están tan enfadados algunos hombres? In: Nuevos hombres buenos La masculinidad en la era del feminismo. España: Ediciones Península; 2017. p. 75-81.

21. Velandia Ana. Influencia de la "Cuestión Femenina en la educación de enfermería en Colombia. Invest. Educ. Enferm. 2013 ;20(1):36-52.

22. Ahmed S. Sentir el propio camino. In: La política cultural de las emociones. México: Universidad Nacional Autónoma de México; 2015. p.19-47.

Original article

Reflections on nursing students' fear and anxiety arising from clinical practicums

Agostinho Antônio Cruz Araújo[1,7]
https://orcid.org/0000-0003-0996-0385
Simone de Godoy[2,7]
https://orcid.org/0000-0003-0020-7645
Carla Aparecida Arena Ventura[3,7]
https://orcid.org/0000-0003-0379-913X
Ítalo Rodolfo Silva[4,8]
https://orcid.org/0000-0002-2882-1877
Emerson Willian Santos de Almeida[5,7]
https://orcid.org/0000-0002-6846-021X
Isabel Amélia Costa Mendes[6,7]
https://orcid.org/0000-0002-0704-4319

Reflections on nursing students' fear and anxiety arising from clinical practicums

Abstract

Background. Anxiety and fear are emotional responses that may emerge when individuals anticipate threats. Undergraduate nursing students may experience feelings of hopelessness and anguish in the clinical learning experience, directly impacting their academic performance. This study aims to reflect upon the fear and anxiety faced by nursing students during clinical training. **Synopsis of Contents.** Two thematic axes were focused: Students' perception regarding preceptorship attitudes and positions; Relational teaching-learning processes and their influence on the students' professional identity. Preceptors are expected to encourage the establishment and maintenance of good relationships in the collaborative network in which students are included, especially with the multi-professional health team, to have more comprehensive academic support. **Conclusion.** The role

1 Master Student.
Email: agostinhocruz@usp.br
2 Asociate Professor.
Email: sig@eerp.usp.br
3 Full Professor.
Email: caaventu@gmail.com
4 Asociate Professor.
Email: italoufrj@gmail.com
5 Doctoral Student.
Email: emersonwillian@usp.br
6 Emeritus Profesor,
Email: iamendes@usp.br. Corresponding author.
7 University of São Paulo, Ribeirão Preto College of Nursing, Ribeirão Preto, São Paulo, Brazil
8 Federal University of Rio de Janeiro, Macaé, Rio de Janeiro, Brazil

Conflicts of interest: none.

Receipt: 22 April 2022.

Approved: 5 October, 2022.

How to cite this article: Araújo AAC, Godoy S, Ventura CAA, Silva IR, Almeida EWS, Mendes IAC. Reflections on nursing students' fear and anxiety arising from clinical practicums. Invest. Educ. Enferm. 2022; 40(3):e13.

DOI: https://doi.org/10.17533/udea.iee.v40n3e13.

and importance of each individual in academic training, such as students and professors, is emphasized, seeking to promote positive experiences in the teaching-learning process to enable undergraduate students to more effectively develop moral sensitivity and take responsibility for patient-centered care.

Descriptors: Anxiety; Fear; Nursing; Nursing Education; Students, Nursing.

Reflexiones sobre el miedo y la ansiedad de los estudiantes de enfermería derivados de las prácticas clínicas

Resumen

Marco contextual. La ansiedad y el miedo son respuestas emocionales que pueden surgir cuando las personas anticipan amenazas. Los estudiantes de pregrado en enfermería pueden experimentar sentimientos de desesperanza y angustia en la experiencia de aprendizaje clínico, lo que impacta directamente en su desempeño académico. Este estudio tiene como objetivo reflexionar sobre el miedo y la ansiedad que enfrentan los estudiantes de enfermería durante la formación clínica. **Síntesis del contenido.** Se enfocaron dos ejes temáticos: la percepción de los estudiantes sobre las actitudes y posiciones de la preceptoría; Los procesos de enseñanza-aprendizaje relacionales y su influencia en la identidad profesional de los estudiantes. Se espera que los preceptores favorezcan el establecimiento y mantenimiento de buenas relaciones en la red colaborativa en la que se incluyen los estudiantes, especialmente con el equipo multiprofesional de salud, para tener un apoyo académico más integral. **Conclusión.** Se enfatiza el papel y la importancia de cada individuo en la formación académica, como estudiantes y profesores, buscando promover experiencias positivas en el proceso de enseñanza-aprendizaje que permitan a los estudiantes de pregrado desarrollar más efectivamente la sensibilidad moral y asumir la responsabilidad del cuidado centrado en el paciente.

Descriptores: Ansiedad; Miedo; Enfermería; Educación en Enfermería; Estudiantes de Enfermería.

Reflexões sobre o medo e a ansiedade de estudantes de enfermagem emergentes da prática clínica

Resumo

Enquadramento. A ansiedade e o medo são respostas emocionais que podem surgir quando os indivíduos antecipam ameaças. Estudantes de graduação em enfermagem podem vivenciar sentimentos de desesperança e angústia na experiência de aprendizagem clínica, impactando diretamente seu desempenho acadêmico. Este estudo tem como objetivo refletir sobre o medo e a ansiedade enfrentados por estudantes de enfermagem durante a formação clínica. **Síntese do conteúdo.** Dois eixos temáticos foram enfocados: Percepção dos alunos sobre atitudes e posições de preceptoria; Processos relacionais de ensino-aprendizagem e sua influência na identidade profissional dos alunos. Espera-se que os preceptores incentivem o estabelecimento e a manutenção de boas relações na rede colaborativa em que os alunos estão inseridos, principalmente com a equipe multiprofissional de saúde, para ter um suporte acadêmico mais abrangente. **Conclusão.** Ressalta-se o papel e a importância de cada indivíduo na formação acadêmica, como alunos e professores, buscando-se promover experiências positivas no processo ensino-aprendizagem para que os graduandos desenvolvam de forma mais efetiva a sensibilidade moral e assumam a responsabilidade pelo cuidado centrado no paciente.

Descritores: Ansiedade; Medo; Enfermagem; Educação em Enfermagem; Estudantes de Enfermagem.

Introduction

A startup in the University of Oxford, United Kingdom, reports that anxiety disorders affect 3.8% of the world population, approximately 284 million people,(1) and for this reason, anxiety disorders are considered the disease of the 21st century.(2) These disorders comprise psychological comorbidities, including manifestations of anxiety and fear.(3) Anxiety is the anticipation of a real or imaginary threat, while fear is an emotional response to a situation an individual considers an imminent or future threat.(3) Regardless of an individual's response, quality of life will be directly affected; there is evidence that anxiety negatively impacts academic performance.(4,5) In the context of nursing education, anxiety and fear compromise a student's performance during clinical practicums.(6-8)

Anxiety is identified based on a student's perception regarding a programmed event, such as the beginning of clinical activities, while fear is perceived during the performance of technical, dialogical, or political tasks, practical classes, simulations, or supervised training. One descriptive study addressing nursing students reports that students might experience various situations with the potential to trigger anxiety and fear, such as fear of making mistakes, failing, not having sufficient knowledge, having a negative experience with their preceptors, not knowing how to act, and feeling uncomfortable when dealing with patients and their families. Furthermore, research shows that emotional responses are not restricted to the beginning of clinical activities; such responses are also found among already graduated individuals.(7)

A systematic review reports that anxiety and negative feelings, such as fear, adversely influence the performance of nursing students.(6) Studies addressing anxiety and fear among students are increasingly recognized, mainly because this is a recurrent condition that has become progressively evident during the covid-19 pandemic. Many students may manifest more significant anxiety and fear in these challenging times compared to regular contexts.(8) Therefore, our purpose is to explore fear and anxiety, considering that the manifestation of these conditions compromises a student's learning process and possibly his/her professional future. Hence, our objective is to reflect upon the fear and anxiety faced by nursing students during clinical training. This reflection is based on two central themes: Students' perception regarding preceptorship attitudes and positions; Relational teaching-learning processes and their influence on the students' professional identity.

Students' perception regarding preceptorship attitudes and positions

Professors monitor undergraduate students in the practical field, except during supervised internships. Nurses employed by the institution selected for supervised internships are the preceptors of students. Thus, a need emerges in this context to compare the time spent and nature of the bond established between students and professors and students and preceptors. Studies show that anxiety and fear may emerge depending on preceptors' attitudes.(9,10) For example, a cross-sectional study addressing nursing students at the University of Ontario, Canada, reports that one of the primary causes of anxiety among undergraduate students is the interaction with preceptors. Additionally, the students addressed by the above study reported that preceptors do not support them in the clinical environment.(10)

Fear and anxiety may cause either a positive or negative reaction on students. From a positive behavioural perspective, superior academic growth may result from stressors in a given discipline. On the other hand, students who negatively react to stressors become shy in the face of other group members, which compromises their learning and academic performance. Therefore, nursing students require monitoring during clinical training, considering that despite students' autonomy, they cannot answer for the activities performed and require a preceptor. In addition, a qualitative study shows that students attending supervised training have the opportunity to develop managerial competencies and apply theoretical knowledge acquired during the undergraduate program into practice.(11) For this reason, a preceptor is fundamental in the teaching-learning process to encourage students to develop autonomy.

Preceptors are a reference for students in a hospital setting, providing guidance and performing procedures in their clinical practice.(12) However, it is necessary to reflect upon a preceptor's role because the supervision of unqualified professionals may negatively impact a student's training. The reason is that students may learn and incorporate habits that are incompatible with recommendations provided by professors and literature. From this perspective, there is a strategy of preceptorship in nursing to support students and preceptors. This strategy is composed of different roles/responsibilities: nursing student's rights and duties during the internship; personal preceptor, the nurse who directly monitors the student; head preceptor, the nurse who supports students and preceptors to meet learning objectives; link teacher, the professor who participates in the internship planning and assesses students and preceptors; clinical teacher, the professor responsible for developing clinical competencies and supporting preceptors and the link teacher. However, implementing this strategy is challenging, especially regarding the length and improvement of students in each context.(12)

Trust, reassurance, moral courage, and moral sensitivity are essential in any interpersonal relationship but require special attention and should be encouraged in practice settings. In addition, preceptors should encourage students to develop and maintain a good relationship with the support network, especially with the multi-professional health team, to ensure greater support. Trusting the monitoring and guidance provided by preceptors and professors is essential. Thus, both must have qualified theoretical and practical knowledge to ensure students feel confident, which positively influences their performance. The five-component model,(12) nursing student, personal preceptor, head preceptor, link teacher, and clinical teacher would be the most appropriate in the tutorship and preceptorship process, considering that the larger a student's support network, the more motivated and self-assured the student will be to face the difficulties that emerge during clinical practicums.

Feeling comfortable with preceptors also influences the students' level of moral courage developed during the learning experience and how they assess ethics from the mentor's perspective as a model to be followed or not. Moral courage is considered a virtue in the nursing field and plays a vital role in molding a nurse's personal and professional development.(13) On the other hand, the responsibility during the teaching and learning process is not restricted to the educator, but also needs to consider the personal availability of the student. Each student has different personal and academic motivations. Thus, their productivity in the clinical environment varies according to the interest area, and is also influenced by the relationship with the other students and the professor. Therefore, considering a positive interpersonal relationship of work/learning with the tutor, the student can deal with difficulties in the clinical environment. Thus, instead of negative psychological results, the lived experiences can base learning, contributing to personal and academic growth.

Considering the individual characteristics of each student, the role of emotions in morality was explored considering the moral sensitivity concept, defined as a perception that another person's action may affect one's well-being.(14) The conclusion is that moral sensitivity can help nurses deal with the various demands and opinions that emerge in the daily routine within a healthcare setting, a context in which emotions are usually underestimated when considering moral issues. The authors of the study above argue that we need to dose cognition and emotion; otherwise, we may commit the mistake of despising a crucial part of morality in exercising our care roles. They state that nurses are likely to adopt various ideal types of moral sensitivity when confronted with an ethical issue, and many ideal types of moral sensitivity are found in the health field, especially among nurses. However, the authors refer to individuals more driven by rationale than emotion or those overly zealous of institutional values or group rules, considering that when we ground ourselves on reasoning only, we "leave out an essential part of morality." The authors above consider that having morality means behaving according to one's understanding of the good and bad in harmony with one's upbringing, education, religion, and other socialization processes.(15)

The concept of moral sensitivity makes us reflect upon the teaching-learning process and the style of professors and preceptors that can either promote or prevent a student from coping with fear and anxiety.(15) Professors and preceptors should encourage, contribute, respect the students' individuality, and welcome students for choosing the profession instead of rejecting their choice, which hinders their development. Students need to be driven, nurtured, and encouraged to bloom and give their best to become leaders so that they will value their profession and themselves as excellent professionals at their community's service. Therefore, those responsible for students, either professors or preceptors, should identify the students' traits that may interfere in their development in a clinical setting and the construction of their professional identities, such as a self-demanding personality or making social comparisons, as each individual has a different level of confidence in performing tasks. Therefore, one should aim to decrease learning inequalities from the perspective of educational strategies.

Relational teaching-learning processes and their influence on the students' professional identity

Moral distress causes feelings of hopelessness.(16) Thus, we need to consider it in the training process of nursing students because, regardless of emotional manifestations, it may interfere in an individual's growth and permanence in the profession.(17) Furthermore, moral distress is not restricted to an event and the time it occurs; instead, it is recurrent and may lead students to experience anguish.(18) Moral suffering can directly impact students' motivation to continue the program. As students experience situations of fear and anxiety in a clinical environment, and do not deal with these challenges, this can result in damage to their academic performance. Therefore, professors and preceptors need to pay attention to students when performing their activities, especially in a clinical setting. Whenever students face a situation that leads to mistakes or uncertainty during their practice, they may have second thoughts about pursuing a career in the nursing field and quit, even if having the potential to grow in the profession successfully.

Nonetheless, a student should not be monitored and assessed based only on his/her individuality but also from a collective perspective.(17) The reason is that a student may perform better when alone than when in a group composed of peers, preceptors, or professors. Students are expected to develop and improve leadership during the academic program, and leadership is an essential characteristic in the nursing field because nurse leaders transform reality. Additionally, teamwork should be encouraged since the beginning of the program as nursing professionals are expected to lead the nursing staff and play a collaborative role in inter-professional teams. Clinical settings enable students to develop and improve their practical skills allied with theoretical knowledge. Training in this environment effectively contributes to one's professional identity.(18) However, academic success is not only effectively fulfilling the disciplines' requirements. On the contrary, intrinsic factors (e.g., being able to manage tasks, assume responsibilities and deal with setbacks, being motivated, and developing professionalism and communication skills) and extrinsic factors (e.g., the quality of teaching and the support provided by educators in this environment) influence a student's performance.(19) From this perspective, a self-demanding personality and making social comparisons influence a student's self-confidence during the training process. Stress experienced in the teaching environment may affect academic satisfaction and harm a student's performance, causing disinterest and lack of motivation toward the training process.(20)

Faced with dissatisfaction in the teaching environment, students may start demanding themselves to improve their performances or even seek perfection in clinical tasks. Unfortunately, this behaviour may compromise academic achievement and quality of life as students may spend time with academic tasks that should otherwise be dedicated to leisure and resting, in an attempt to achieve satisfaction and perform as well as their peers. Students must adequately administer their time dedicated to academic assignments and studies to deal with stressors during academic training (e.g., second doubting oneself or negativism). In addition, the university plays an essential role in promoting a reassuring environment when providing services to preserve and promote students' physical and mental health. Thus, contributions to avoid more severe conditions, such as depression, are not restricted to students' academic development but also their personal growth.(21)

In 1954, Leon Festinger introduced the expression "social comparison," defined as a way to change one's behaviour based on someone else's skills.(22) Social comparison is highly likely to occur during one's academic training. Students perform evaluative activities throughout the program and try to match other students' performance, comparing each other's achievements.(23) From this perspective, up to a certain degree, social comparison can positively influence a student's performance, as they may identify aspects that can be improved. However, frequently assimilating other students' behaviours will negatively influence one's self-confidence.

Being self-demanding and social comparison is inevitable during the clinical training of nursing students. Hence, interventions are needed to help students deal with a lack of self-confidence, anxiety, and fear during their academic training. The earlier these characteristics are identified, and strategies are implemented to cope with them, the more likely students will improve their performance in academic activities, practical classes, and supervised training.

In order to contribute to the international organizations' goals in favor of health policies, especially with respect to the composition of the teams with the participation of nurses, it is important to stimulate the schools, as well as faculty, preceptors or technicians, to understand the need to embrace students who are interested in the profession. Therefore, policy makers must take into consideration the recommendations of the State of the World´s Nursing Report driving strategic investments to Nursing education, inspiring and retaining talents to perform well their role in society.(24) Globally, the different actors in Nursing education should use all investments to prepare the new generation of nurses well.(25) The private or public organizations which employ nurses, must value and retain these professionals, through multiple incentives that will reflect in the quality of the healthcare delivered.(24)

Thus, the relational processes are the foundation to interactive situations involving the learning-teaching process, but also interefering in the professional identity of nurses, as well as are the basis for a teaching offered in accordance to local, regional and global needs. In the case of nurses training, it is relevant to consider the data presented in the State of the World´s Nursing Report,(24) especially related to the deficit of 5.9 million nursing professionals in 2018. These issues discussed in the end of the first decade of the 21th century, and more often in the beginning of the actual decade, are based on evidences that increased the concern of international organizations and governments and enabled the development of the Nursing Now Campaign. In this perspective, this reflection is centered on the fear and anxiety faced by Nursing students, a theme that must be considered by the institutions that are responsible for these professionals training. This scenario of a high deficit asks for behaviors directed to inspire, stimulate, retain and value these human resources.

Conclusion

These reflection discussions were based on the specificities of the roles played by professors/preceptors, students, and the organizations involved. In summary, we reiterate the importance of these actors to construct positive teaching-learning experiences and encourage nursing students to develop their moral sensitivity and take responsibility for patient-centered care individually and jointly more effectively.

References

1. Dattani S, Ritchie H, Roser M. “Mental Health” [Internet]. Our World in Data [Internet]; 2021. Available from: https://ourworldindata.org/mental-health
2. McNaughton, N. Brain maps of fear and anxiety. Nat. Hum. Behav. 2019; 3:662-3.
3. Penninx BW, Pine DS, Holmes EA, Reif A. Anxiety disorders. Lancet. 2021; 397(10277):914-27.
4. Balogun AG, Balogun SK, Onyencho CV. Test anxiety and academic performance among undergraduates: the moderating role of achievement motivation. Span. J .Psychol. 2017; 20(E14).
5. England BJ, Brigati JR, Schussler EE. Student anxiety in introductory biology classrooms: Perceptions about active learning and persistence in the major. PLoS One. 2017; 12(8):e0182506.
6. Shapiro AL. Test anxiety among nursing students: A systematic review. Teach. Learn. Nurs. 2014; 9(4):193-202.
7. Cowen KJ, Hubbard LJ, Hancock DC. Concerns of nursing students beginning clinical courses: A descriptive study. Nurse Educ. Today. 2016; 43:64-8.

8. Savitsky B, Findling Y, Ereli A, Hendel T. Anxiety and coping strategies among nursing students during the covid-19 pandemic. Nurse Educ. Pract. 2020; 46:102809.
9. Sun FK, Long A, Tseng YS, Huang HM, You JH, Chiang CY. Undergraduate student nurses' lived experiences of anxiety during their first clinical practicum: A phenomenological study. Nurse Educ. Today. 2016; 37:21-6.
10. Wang AH, Lee CT, Espin S. Undergraduate nursing students' experiences of anxiety-producing situations in clinical practicums: A descriptive survey study. Nurse Educ. Today. 2019; 76:103-8.
11. Rigobello JL, Bernardes A, Moura AA, Zanetti ACB, Spiri WC, Gabriel CS. Supervised Curricular Internship and the development of management skills: a perception of graduates, undergraduates, and professors. Esc. Anna Nery. 2018; 22(2):e20170298.
12. Hallin K, Danielson E. Being a personal preceptor for nursing students: Registered nurses' experiences before and after introduction of a preceptor model. J. Adv. Nurs. 2009; 65(1):161-74.
13. Escolar-Chua RL. Moral sensitivity, moral distress, and moral courage among baccalaureate Filipino nursing students. Nurs. Ethics. 2018; 25(4):458-69.
14. Rest JR. A psychologist looks at the teaching of ethics. The Hastings Center Report. 1982; 12(1):29-36.
15. Kraaijeveld MI, Schilderman J, Leeuwen E. Moral sensitivity revisited. Nurs. Ethics. 2021; 28(2):179-89.
16. Nejadsarvari N, Abbasi M, Borhani F, Ebrahimi A, Rasooli H, Motamedi MHK, et al. Relationship of moral sensitivity and distress among physicians. Trauma Mon. 2015; 20(2):e26075.
17. Chua RLE, Magpantay JCJ. Moral distress of undergraduate nursing students in community health nursing. Nurs. Ethics. 2019; 26(7-8):2340-50.
18. O'Mara L, McDonald J, Gillespie M, Brown H, Miles L. Challenging clinical learning environments: Experiences of undergraduate nursing students. Nurse Educ. Pract. 2014; 14(2):208-13.
19. Cachia M, Lynam S, Stock R. Academic success: Is it just about the grades? High. Educ. Pedagog. 2018; 3(1):434-9.
20. Altiok HÖ, Üstün B. The stress sources of nursing students. Educational Sciences: TheoryPract. 2013; 13(2):760-6.
21. Bresolin JZ, Dalmolin GL, Vasconcellos SJL, Barlem ELD, Andolhe R, Magnago TSBS. Depressive symptoms among healthcare undergraduate students. Rev. Lat. Am. Enfermagem. 2020; 28:e3239.
22. Festinger L. A theory of social comparison processes. Human Relations. 1954; 7(2):117-40.
23. Pulford BD, Woodward B, Taylor E. Do social comparisons in academic settings relate to gender and academic self-confidence? Soc. Psychol. Educ. 2018; 21:677-90.
24. World Health Organization. State of the world's nursing 2020: investing in education, jobs and leadership [Internet]. Geneva: WHO; 2020. Available from: _https://www.who.int/publications-detail/nursing-report-2020
25. Mendes IAC, Trevizan MA. In the absence of light, the Nursing Now lighthouse illuminates the future. Rev. Lat. Am. Enfermagem. 2020; 28:e3356.

Original article

UNIVERSIDAD
DE ANTIOQUIA
1803

Adaptive modes of adult men during COVID-19: qualitative analysis under Roy's model

Vinícius de Oliveira Muniz[1]
https://orcid.org/0000-0001-5605-9720
Anderson Reis de Sousa[2,9]
https://orcid.org/0000-0001-8534-1960
Thiago da Silva Santana[3,10]
https://orcid.org/0000-0003-0987-0814
Alisson dos Anjos Santos[4,9]
https://orcid.org/0000-0003-3226-3473
Ramon Evangelista Luz[5]
https://orcid.org/0000-0001-8875-1682
Eric Santos Almeida[6,9]
https://orcid.org/0000-0001-9043-5988
Isabella Félix Meira Araújo[7,9]
https://orcid.org/0000-0002-0631-994X
Evanilda Souza de Santana Carvalho[8,10]
https://orcid.org/0000-0003-4564-0768

Adaptive modes of adults' men during the COVID-19: qualitative analysis under Roy model

Abstract

Objective. This study aims to understand how adult men adapt to the COVID-19 pandemic. **Methods.** Qualitative study involving 45 adult men residing in Brazil in 2020. Data were obtained from a Web Survey and treated using Reflective Thematic Analysis and interpreted in the light of Callista Roy's Adaptation Model. **Results.** The COVID-19 pandemic mobilized in men the ways of adaptation that are configured in: mobilization of the physiological-physical and regulatory dimension: adjustments in the

1 Nurse, Master. Ensinar Brasil Institute. Serra, ES, Brazil. Email: vinciusomuniz22@gmail.com. Corresponding author.
2 Nurse, PhD. Email: anderson.sousa@ufba.br
3 Nurse, Master. Email: tssantana@uefs.br
4 Medical student, Bachelor of Health. Email: alissons@ufba.br
5 Nurse, Specialist. United Faculties of Research, Science and Health (FAPEC), School of Nursing. Salvador Bahia Brazil. Email: ramonlluz@hotmail.com
6 Nurse, Master. Email: eriksdn@gmail.com
7 Nurse, Master. Email: isabellafelixmeira@hotmail.com
8 Nurse, PhD. Email: evasscarvalho@uefs.br
9 Federal University of Bahia (UFBA). Salvador Bahia Brazil.
10 State University of Feira de Santana (UEFS). Feira de Santana, Bahia, Brazil.

Conflicts of interest: None.
Received: December 13, 2021.
Approved: October 5, 2022.
How to cite this article: Muniz VO, Sousa AR, Santana TS, Santos AA, Luz RE, Almeida ES, Araújo IFM, Carvalho ESS. Adaptative modes of adults' men during the COVID-19: qualitative analysis under Roy model. Invest. Educ. Enferm. 2022; 40(3):e14.
DOI: https://doi.org/10.17533/udea.iee.v40n3e14.

UNIVERSIDAD
DE ANTIOQUIA
1803
Investigación y Educación en
Enfermería
–Nursing Research and Education–
Vol. 40 No.3, September-December 2022 • ISSNe: 2216-0280

sleep pattern, dietary pattern, and maintenance of physical activity; group self-concept identity: managing emotions; role function: self-knowledge and self-care; interdependence: adjustments in the marital relationship, family ties and paternity, investment in training and studies and control of excessive consumption of content on cell phones. **Conclusion.** The perception of the own vulnerability favored the entry of men into ways of adaptation in search of balance during the pandemic, motivating them to move through practices of taking care of themselves and taking care of others. Markers of psycho-emotional distress alert to adherence to new modes of care capable of promoting healthy transitions in the face of disruptions and uncertainties generated by the pandemic. This evidence can support the establishment of goals for nursing care aimed at men.

Descriptors: pandemics; COVID-19; adaptation; men's health; nursing theory.

Modos de adaptación de hombres adultos durante el COVID-19: análisis cualitativo bajo el modelo de Roy

Resumen

Objetivo. Comprender cómo se estructuran los modos de adaptación de los hombres adultos a la pandemia de COVID-19. **Métodos.** Estudio cualitativo que involucró 45 hombres adultos en Brasil en 2020. Los datos se recolectaron mediante la Encuesta Web y a continuación se sometieron al Análisis Temático Reflexivo e interpretados bajo el Modelo de Adaptación de Callista Roy. **Resultados.** La pandemia de COVID-19 movilizó en los hombres modos de adaptación que se configuran en: movilización de la dimensión fisiológico-física y reguladora: ajustes en el patrón del sueño, la alimentación y el mantenimiento de la actividad física; autoconcepto grupal de identidad: gestión de las emociones; función de rol: autoconocimiento y autocuidado; interdependencia: ajustes en la relación conyugal, vinculación familiar y paternidad, inversión en formación y estudios, y control del consumo excesivo de contenidos en el dispositivo móvil. **Conclusión.** La percepción de la propia vulnerabilidad favoreció el ingreso de los hombres a modos de adaptación en busca del equilibrio durante la pandemia, lo que los estimuló a transitar por prácticas de cuidarse a sí mismos y cuidar de los demás. Los marcadores de sufrimiento psicoemocional alertan sobre la adhesión a nuevos modos de atención capaces de promover transiciones saludables ante las disrupciones e incertidumbres generadas por la pandemia. Esta evidencia puede apoyar el establecimiento de metas para el cuidado de enfermería hacia los hombres.

Descritores: pandemias; COVID-19; adaptación; salud del hombre; teoría de la enfermería.

Modos adaptativos de homens adultos durante a COVID-19: análise qualitativa sob o modelo de Roy

Resumo

Objetivo. Compreender como se estruturam os modos de adaptação de homens adultos à pandemia da COVID-19. **Métodos.** Estudo qualitativo que envolveu 45 homens adultos residentes no Brasil em 2020. Os dados foram obtidos de W*eb Survey* e tratados mediante Análise Temática Reflexiva e interpretados à luz do Modelo de Adaptação de Callista Roy. **Resultados.** A pandemia da COVID-19 mobilizou nos homens os modos de adaptação que se configuram em: mobilização da dimensão fisiológico-física e regulatória: ajustes no padrão de sono, alimentar e manutenção da atividade física; identidade do autoconceito de grupo: gestão das emoções; função de papel: autoconhecimento e autocuidado; interdependência: ajustes no relacionamento conjugal, vinculação familiar e na paternidade, investimento na formação e estudos e controle do consumo excessivo de conteúdos no aparelho celular. **Conclusão.** A percepção da própria vulnerabilidade favoreceu a entrada dos homens em modos de adaptação em busca de equilíbrio durante a pandemia, motivando-os a transitar por práticas de cuidar de si e cuidar do outro. Marcadores de sofrimento psicoemocional alertam para adesão a novos modos de cuidado capazes de promover transições saudáveis diante das rupturas e incertezas geradas pela pandemia. Essas evidencias podem apoiar o estabelecimento de metas para o cuidado de Enfermagem dirigido aos homens.

Descritores: pandemias; COVID-19; adaptação; saúde do homem; teoria de enfermagem.

Introduction

On a large scale, men have experienced an unprecedented experience that transformed the universe as a result of the impacts caused by COVID-19, declared a pandemic on March 11, 2020.(1) Faced with the scenario of uncertainties, significant social and environmental disruptions, the subjects were mobilized to promote new physiological and psychosocial adaptive modes.(2) Because it is a highly transmissible disease, health authorities established collective social distancing as a priority measure for the containment of the virus, however, this measure precipitated the rupture of socio-affective networks, financial balance and changes in human productive capacity, which abruptly began to experience anticipatory grief. As a result, routines were redesigned, others established and the various commitments, especially labor, began to be developed remotely on a large scale.(3)

Until November 2021, in Brazil, there were nineteen million people with confirmed diagnoses and a total of 608,671 deaths resulting from COVID-19,(4) a study carried out in a Brazilian state showed that the case fatality rate was only among men 2.71%, while among women, 1.48%.(5) This same scenario is observed in other countries and has challenged researchers and policymakers to understand the reasons why the cisgender male audience has been more affected.(6)

Despite evidence that showed different modulations of the immune response between men and women,(7,8) understanding the higher rates of infections among men presupposes the social dimension in which the experience of illness reflects the intersections of other elements, which impact on health behaviors causing greater male vulnerability to contamination by COVID-19, which can be modified requiring goals for care.(9,10)

In addition, the fact that the complications of COVID-19 have repercussions on the bioenergetic dysfunction of men, evident in post-Covid-19 disabling syndromes,(6,7) aroused our interest in proposing adaptive care of nurses, for which we chose as a theoretical reference the Roy's Adaptation Model (RAM),(2) as it enables the achievement of interventional specificities in the production of care for men, according to its adaptive modes, which interact with the adaptive regulatory and cognition subsystems to face the improbabilities experienced by men during the pandemic.(2,10-12) Thus, this article was guided by the following research question: How has the COVID-19 pandemic produced/mobilized the emergence of adaptive modes among adult men? Its objective was: to understand the ways in which adult men adapt to the COVID-19 pandemic, based on the model proposed by Callista Roy.

Methods

This is a qualitative research structured in the light of the theoretical framework of Roy's Adaptation Model (RAM), which aims to maintain a preserved state of health amidst the changes that have taken place, with full appreciation of people who face new imposed challenges such as the health crisis(2,13) This study has a multicenter character and is part of a matrix project of national scope, for which the virtual environment (Web Survey) was used to develop data collection, through a semi-structured and self-administered form, available on the Google Forms® platform, whose answer took about 20 minutes and contained closed and open questions related to sociodemographic, work, health conditions and the phenomenon of interest to the investigation, in the form of the following questions: How have you been experiencing the COVID-19 pandemic? What have you been doing to face the COVID-19 pandemic?

The data collection instrument was submitted to internal validation (pilot test) by two PhD researchers, a special PhD student and two regular PhD graduate students, and externally by a group of 25 participants (seeds) chosen convenience for being available to participate in the research in all its phases. Data were collected between June and September 2020 with a sample of 45 men over 18 years of age, who met the inclusion criteria: consider themselves men, be an adult and reside in Brazil in the context of the pandemic; those participants who found on international trips during this period were excluded.

The research team was composed of four researchers (men) and two researchers (women), with experience in the research area, working in teaching, research and service during data collection, without contact and/or direct link with the participants who maintained all technical rigor and scientific required in qualitative research, obtaining the study design according to the COREQ recommendations. To identify possible participants, the strategy of consecutive recruitment of men was adopted using the Snowball technique,(14) in which a group of the first 25 participants who responded to the invitation, called "seeds", were accessed and later shared the hyperlink for other men.

The approach and recruitment took place through social networks such as Facebook®, Instagram®, WhatsApp®, Grindr® and Scruff®. Dating apps were selected because they had a high concentration of male users, so informal messages were sent asking if they were interested in answering the form, and when the answer was productive, the hyperlink was sent. In the social media of the project, inviting layouts related to the research were disclosed.

The process of theoretical exhaustion(15,16) took place from the interruption of data collection because they were no longer inferred and because they did not bring new clarifications to the object of study investigated in the observed field. To preserve the anonymity of the participants, they were identified by the letter M and followed by randomly distributed Arabic numerals.

To assist in the systematization of the data, the NVIVO12 Software was used. Data analysis followed the deductive perspective, guided by the theoretical/methodological proposal contemplated in Roy's four adaptive modes: 1) physiological-physical (physical and chemical processes of human activities in the face of adaptations); 2) group self-concept identity (psycho-spiritual integrity with the sense of being unity and its purpose in the universe); 3) role function (roles held in society and social integrity) and 4) interdependence (structural relationship of the solitary or collective being);(2,13) as well as by the Reflective Thematic Content Analysis proposed by Clark and Braun, in its six stages: rigorous reading and re-reading of data; creation of theoretical codes (nodes); derivation of emerging themes and subthemes; code grouping;

search for relationships between the themes that emerged; naming of themes and development of the analysis synthesis corresponding to the object of investigation.(17)

The project was approved by the Research Ethics Committee of the Federal University of Bahia, under opinion number: 4,087,611 and CAAE: 32889420.9.0000.5531, according to resolutions 466/12 and 674/2022 and Circular Letter 2/2021, of the CNS, in addition to the general data protection law. The participants declared their consent to the Informed Consent Term (ICT) in the imagery modality. For the preservation of identity, codes were created for the participants, such as: M1 (Man 1), M2 to M45.

Results

Most of the individuals involved in this study identified themselves as heterosexual, cisgender, of mixed race/color, with a higher education level, with a mean salary income above five minimum wages, single, living in urban areas, living with family members, not elderly. Participants reported not having been affected by COVID-19 or having sequelae that could be attributed to the disease. They used both the Unified Health System and the private subsystem to access general health services and care. The empirical material was framed in four Thematic Analysis Categories (TAC) in convergence with RAM, namely: Physiological-physical mode and regulatory subsystem (TAC1), composed of 3 Thematic Cores (TC): changes in sleep pattern (TC1A), changes in dietary pattern (TC1B), and changes and adoption of measures to maintain physical activity (TC1C); Group self-concept identity mode (TAC2), with 01 TC: changes in the management of emotions (TC2A); Role function mode (TAC3), with 01 TC: improvement of self-knowledge, self-care and health care practices (TC3A); Change of interdependence (TAC4) with 4 TC: Changes in the dynamics of the marital relationship, in the performance of roles and in the exercise of paternity (TC4A), Improved strengthening of family ties (TC4B), Increased availability of time to study (TC4C), and excessive cell phone use (TC4D).

TAC1 - Physiological-physical mode and regulatory subsystem

Dimensions such as dietary patterns, physical activity and sleep constantly fluctuated among men, both for the decline and for the achievement of favorable advances in these patterns. The pandemic context gave rise to the physiological-physical mode, which manifested the construction of physical and organic processes closely linked to body systems and the adoption of operational resources considered basic, also understood as regulatory coping subsystems.

TC1A: Changes in sleep pattern

[...] *I am changing night for day. My sleep is totally altered. Much has changed since the beginning of the pandemic*. *Because of this I've been trying to sleep early.* M1;
[...] *there have been changes in my sleep. I have been having trouble sleeping and am waking up earlier than usual. Therefore, I am avoiding consuming news about Covid-19 and using my cell phone at night.* M4;
[...] *I am changing night for day.* M15;
I have been having insomnia and this has led me to adopt sleep hygiene. M22.

TC1B: Changes in dietary pattern

[...] *there are days when I have been eating a lot and days when I have absolutely no appetite. This has changed my weight, because sometimes I gain weight, sometimes I lose weight suddenly. Because of this, I started to weigh myself indoors and control the consumption of unhealthy foods.* M2;
[...] *there are days that I eat a lot of what I ate before the pandemic, mainly because of anxiety. To avoid overconsumption of food I have been trying to control anxiety*. M16;
[...] *the stress of the pandemic made me eat more than usual and I had to seek guidance from a nutritionist in a virtual way*. M21;

[...] *I started to take care of my diet to improve physical health* [...] *I started to consume vitamin supplements, foods rich in vitamins and sunbathing*. M44.

TC1C: Adoption of measures to maintain physical activity

[...] *because I spend more time indoors, I have been doing weight training at my house since the pandemic started, because I'm afraid of losing my physical shape, which is super important to me*. M22;
[...] I *was very sedentary, stressed, and because of that, I went back to physical activity, even indoors, as an escape valve to deal with this change in routine*. M23;
[...] *I'm more nervous, I stopped doing physical activities at the gym, but I tried to adapt as best I could, doing exercises at home, watching videos on the internet*. M34.

TAC2 – Group self-concept identity mode

Disorders of a socio-psychological nature were expressed through reports of anxiety, panic attacks, stress, irritability, mood swings, excessive worry, tension and distress. The identity of the group self-concept refers to some components such as psychological and spiritual integrity and the sense of unity with a purpose in the universe that are combined.

TC2A: Changes in managing emotions

[...] *there have been several changes since the beginning of the pandemic. I started to have emotional changes such as the appearance of anxiety and panic attacks, which made me understand myself better and also the situations around me. I have been more aware of my emotional state than before*. M6;
[...] *I am less reactive and more reflective, trying daily to control stress and keep myself calm*. M12;
[...] the isolation made me more anxious and before that I have taken care of my mental health to control anxiety. M28;
[...] *the accumulation of tense days has contributed to my bursting point. After the pandemic, I started to pay more attention to my mental health and control my behavior.* M38;
[...] *with isolation and reclusion I've been living a physical and mental mess and I've been trying to organize my mind*. M39;
[...] *I noticed some changes in my mood. I have been feeling very tense, worried, distressed with the current situation, especially in the work environment. In view of this, I have sought to share problems with friends, have moments of leisure and be closer to my family*. M43;
[...] *in order to protect my mental health I started to meditate, read and have more interaction with those closest to me*. M45.

TAC3 - Role function mode

Obtaining greater personal care was reported along with the acceptance process that has been taking place in the daily lives of men who have come to better understand the news reported. The data brought from the roles occupied by the participants in society and the reflection on "who I am before others", gave rise to a category and a thematic nucleus.

TC3A: Improvements in self-knowledge, self-care and health care practices

[...] *the pandemic changed everything about me. I started to occupy my mind with activities that I didn't do before, and I feel more useful, creative and supportive.* M27;
[...] *it has been a moment of greater understanding of the "I" within. More patience with the other members where I live. Be more communicative*

despite isolation. Greater confidence in the "I" figure, perception of my ability as a person, human being, professional. M33;
[...] *my personality was completely transformed. Today I have experienced greater empathy, a greater sense of need for giving and collaboration (which I have done in many ways), greater tolerance and compassion, and an even better relationship with my wife*. M35;
[...] *I am understanding better when being open to conversation is important to resolve possible impasses and I have learned to deal with my bad moments*. M36;
[...] *I believe that I am living more intensely everything that I have.* M37;
[...] *I have learned to value the little things more and pay attention to what I didn't give so much importance before*. M41.
[...] *I'm taking more care of myself and others.* M8;
[...] *after Covid-19 I started to improve prevention care*. M9;
[...] *I'm more careful about hygiene. I started washing my hands more and greeting people from afar while maintaining social distance.* M14;
[...] *I have taken care of the new routine and management of my days, optimizing my time at home better*. M26;
[...] *I learned to seek, within myself, comfort to deal with my anguish. In accepting what is going on inside of me, I was very likely to deny anything that was going on inside of me. I learned to look for resources, activities that bring more integration such as yoga and to have healthier habits in my daily life. Not to mention respecting other people's spaces, having more patience and sincerity with my feelings*. M32;
[...] I have been trying to get to know myself more and better. I noticed that I started to be more patient and less blown away. I learned to connect more with people virtually and listen to each one of them with real interest and willingness. M42.

TAC4 - Interdependence Mode

There were reports of greater marital loneliness due to lack of communication and the perception of new experiences such as sharing household chores with partners and longer caring for children. Social isolation was consciously and co-responsibly assumed, and the men participating in this study maintained their affective concerns and perceived greater approximation, interaction and communication with their families. New discoveries on how to study and work in the same environment were cited positively, but demotivation and changes in mental health emerged as consequences of this situation. Some started reading, studied more and used their cell phone excessively without time control.

The four cognitive-emotive channels: perceptual and information processing, learning, judgment and emotion were identified in the data due to dynamic processes that synthesized specific axes.

TC4A: Changes in the dynamics of the marital relationship, in the performance of roles and in the exercise of paternity

[...] *I feel that lately I've been more isolated from my partner, it's just the two of us at home, and there are days that we stay all day without speaking properly. In view of this, I started to strengthen affective bonds, seeking to be closer, available to support her and to exchange affection in this difficult time that the pandemic is being*. M7;
[...] *I have experienced many changes in the routine in relation to household chores, in addition to caring for children during the period of social isolation. I sought to talk to other men who are married and who are also fathers to find out how they were dealing with this situation. I have tried to participate in the care of the children and the house, making the family more united.* M40.

TC4B: Improved strengthening of family ties

[...] *the pandemic brought a great distance from my family, but I have been more concerned about my family and closest people. As I am exposed to the virus, I need to take care that was not necessary before (restriction of contact with father and mother mainly. In addition, I always try to ask those closest to me how they are, how they feel. I exchange experiences with the family, to facilitate this whole moment*. M11;
[...] *I'm closer to my family and with that I talk more with them.* M24;
[...] *in the beginning, I felt more productive and motivated to work, today I feel a little more unmotivated, but I have been trying to cope with the responsibilities I took on during this period.* M30;
[...] *in addition to working from home, the changes have positive practical points, but also negative ones, such as affecting my mental health.* M31.

TC4C: Investment in training and optimization of time to study

[...] *the pandemic brought many difficulties in my study and work routine. As a result, I sought to adhere to new ways of studying and working, avoiding changes in my ability to work. [...] at home, I looked for new ways to learn, approaching the new modalities of virtual teaching.* M13;
[...] *I tried to prioritize my studies, as I have had more free time at home to study*. M17;
[...] *because of the isolation I tried to read and attend virtual classes, much more than before*. M18;
[...] *I dedicated myself to reading more, however as a way of escaping from reality.* M19;
[...] *I started to study more about public policies aimed at health.* M20

TC4D: Control over cell phone usage

[...] *throughout the day I have spent more time on my cell phone than necessary. The use has become excessive and I'm having trouble reducing the length of stay. Because of that I started to decrease the usage time, I removed the notifications and sound messages*. M3.
[...] *with the pandemic I started to feel changes in my individual organization in relation to daily activities. Now I have been trying to control the consumption of content on my cell phone, I avoid using it at night and reducing the frequency of access on social networks*. M5.

The experience of men in the COVID-19 pandemic mobilized the construction of adaptive modes according to RAM adapted based on the findings found, which can be seen in Figure 1, which represents a diagram of human adaptive systems in which there is a centralization of the coping process surrounded by four modes of adaptation that generated new behaviors.

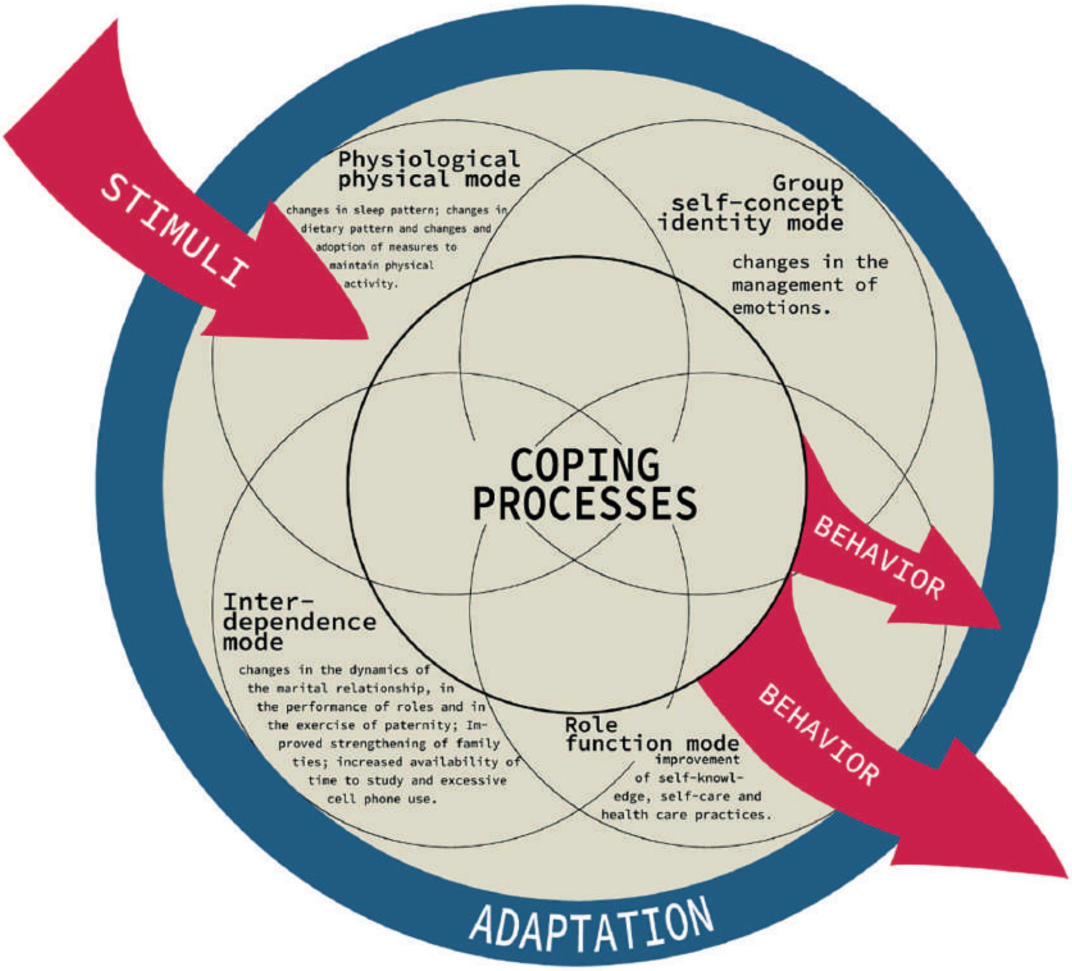


Figure 1. Diagrammatic representation of human adaptive systems to the experience of adult men in the Covid-19 pandemic in Brazil, Salvador, BA, Brazil, 2020

Source: Adapted from Russian; Baumann; Velasco-Whetsell; Roy, 2020.(2)

Discussion

The analysis of male adaptation in the face of the COVID-19 pandemic made it possible to perceive that their ways were convergent, which made it possible to carry out the theoretical framework of RAM; however, they reserve symbolic spaces of the uniqueness of each subject in the face of the experience of the "new self" of the pandemic, which could be observed in the oscillations of health patterns in the physiological-physical mode and in the adaptation regulatory subsystem. New findings are evidenced, such as the openness of men to concern for a healthy adaptation and transition in the face of the numerous changes in their respective social and family contexts through attitudes that provide a healthier life in the face of the pandemic. Mental health stands out, stressing for self-care, in mobilizing adaptive modes and relating to the daily dynamism in which men reported accessing reliable sources of news about the pandemic and filtering the media excess of social networks; they also started integrative practices (meditation and physical activity) and therapeutic activities in male groups in a virtual environment to circumvent the psychosocial impacts.(18) This means that men express alternatives in the face of the perception of their own vulnerability and the feelings of fragility that enhance the effective search for caring for themselves and for others. (6,11,18)

The cognitive-emotive and regulatory channels of RAM(2,13) in view of the findings of this study, were manifested from the perceptive processing of information, learning, judgment and emotion of the adaptive process issues that respond to the dynamics of facts through the neural, chemical and endocrine coping channels. This can be seen in the expressions of self-perception regarding the impacts suffered by men.(18) Although some men have reported alternative measures of low adherence among the male population to deal with the process of coping and adaptation, such as meditation and yoga, others have highlighted the weaknesses in the sleep pattern, with emphasis on insomnia and changes in appetite, which included reduced and increased desire to eat. Thus, men with a higher level of education, economic and work and with greater ease of access to private health services may have a favorable adaptation to achieve balance even in the pandemic.(18) Therefore, the link between sociodemographic conditions and effective adaptive forms it becomes more understandable.(19)

In general, alterations in sleep patterns, in the irregularity between sleeping and waking up, are risk factors for mental health disorders in all human beings, regardless of gender, which reflect a decline in the capacity for intellectual and cognitive function performance.(20) The relationship between men reporting problems in the sleep-wake cycle goes beyond the neurochemical mechanism, as the difficulty in sleeping, waking up and maintaining a desirable quality of sleep, establishes an interface with the excessive feeling of worry that is favorable for insomnia(20) due to confinement and the home office, which promoted the adaptive/regulatory mode by awakening a stimulus to its execution to preserve some immunological/emotional activities in men.(21)

However, an intersection between altered sleep patterns, mood/behavior changes and acute mental disorders, such as the tension/stress/nervousness triad, panic crisis, demotivation and depression, can already be observed. Depression, in turn, is bidirectionally associated with insomnia and makes its treatment a complex clinical management item. It is noteworthy that insomnia causes more depression and both must be treated concomitantly.(20) This situation alerts to the needs triggered by the restrictions and disruptions in the socialization of men that can, in addition to favoring mental illness, make it difficult to access and adhere to psychosocial support programs.

In pandemic contexts, the problem can worsen and make the adaptation process even more complex, which will require nursing interventions anchored in the philosophical and cultural assumptions of RAM,(2,13) aimed at guidance on sleep hygiene, promotion of healthy eating with reduced consumption of alcohol, other drugs and caffeine, and greater control over access to electronic objects before going to bed, as excessive cell phone use without control over time was evidenced.(20,21)

Changes in dietary patterns also emerged in this period and had negative impacts on men's health and quality of life. Such changes are related to mental health aspects and have repercussions on a dysfunctional diet in the face of the psycho-emotional responses mobilized in the pandemic, since the problem of sedentary lifestyle, permeated by physical inactivity, increased time in the sitting position and excessive food intake, raising the possibility that men developed morbidities from the group of Chronic Non-communicable Diseases (CNCDs).(22)

Taking into account the behaviors and attitudes of men's practices, adaptive modes have shown to be ascending, and need to be better explored by multidisciplinary teams, in particular the nurses, with a view to achieving tangible goals of care with other groups of men, namely: acquisition of healthy eating habits; prevention of health problems; hygiene; meditative practices; behavioral management of emotions; strengthening of affective bonds; virtual interaction/communication; hope; self-efficacy; self-compassion and establishment of socio-affective networks.

In addition, the "mode of interdependence", which involves the structure and development of the person as a unit or his collectivity, in a dimension of the cognitive-emotional coping subsystem,(2,13) was present in the experience of men, and may be related to the way they processed the individual adaptability that caused marital, family and paternity changes, and that for these reasons, they lack nursing interventions to support the adaptation of affective relationships between couples and different partnerships, aiming to promote a good relationship, non-violence and a culture of peace with a focus on family harmony and balance.(12,19) It is worth mentioning that with the advance of vaccination, the population acquired subsidies to face an installed international disaster and made men return, as far as possible, with its socializations in different groups, with nursing as a promoter of safety under a collective gaze, in different formats, using technology as a vehicle for communication and digital social interaction.(23,24)

Regarding mid-range Nursing Theories, they are still poorly incorporated into care in the different complexities of health systems, which need to conform to the logic of complex adaptives, because when they are used, nursing theories create foundations that reformulate practices and protocols for the qualification of care, directing it to the specific demands of men during the pandemic and enabling the applicability of focal, contextual and residual stimuli belonging to Roy's model.(2,13)

Regarding the limitations of the study, there was the possibility of biases in relation to the sample in view of the recruitment technique used, the inaccessibility of groups of men with low levels of digital literacy or with limited access to technological resources such as a smartphone and the lack of deepening of knowledge given the impossibility of establishing a dialogue with the participants. Such facts, according to RAM, can hamper the process of monitoring what is adaptable or not, and prevents generalization.

Finally, nurses can expand the scope of their actions, when contemplating the concept "nursing goal"(2) by mobilizing the promotion of adaptation of the four adaptive modes proposed by Callista Roy that named the analytical categories of this study, and for carrying out investigations at the regulatory and cognition levels, as they define the problem more accurately and support the decision on which care plan will achieve its expected results.

Conclusion. Faced with the emergence of the COVID-19 pandemic and its different consequences, men expressed ways of adapting to social interaction facilitated by digital connectivity, generating success in the cognitive subsystem. On the other hand, the group self-concept identity mode still remains in modulation and non-adaptation, especially in mental health, which has been altered, while physical health has been altered through a sedentary lifestyle, eating and sleeping patterns. The way of interdependence was manifested when exercising new behaviors, attitudes and practices that in general are directed to the management of emotions, self-knowledge, spirituality/transcendence and the strengthening of the construction of bonds through socio-affective networks. In addition, the need for adequacy and qualification of health care regarding the adaptation of men was identified, above all, the role that nursing has in providing analytical elements such as RAM, which allow the apprehension and subsidizing of interventions at the individual and collective levels that contribute to better assisting emerging demands.

References

1. World Health Organization (WHO), Pan American Health Organization (PAHO). Folha informativa – COVID-19 (doença causada pelo novo coronavírus) [Internet]. Brasília (DF): Organizaçao Panamerica de Saúde (OPAS); 2020 [cited 2021 May 12]. Available from: https://www.paho.org/bra/index.php?option=com_content&view=article&id=6101:COVID19&Itemid=875
2. Russo S, Baumann SL, Velasco-Whetsell M, Roy C. A Comparison of Two Case Studies Using the Roy Adaptation Model: Parents of Opioid-Dependent Adults and Bariatric Surgery. NSQ. 2019; 32(1):61-7.
3. Conti P, Younes A. Coronavirus COV-19/SARS-CoV-2 affects women less than men: clinical response to viral infection. JBRHA. 2020; 34(2):339-43.
4. Ministério da Saúde (BR). Painel Coronavírus [Internet]. 2021 [cited 2021 nov 05]. Brasília (DF): Ministério da Saúde; 2021. Available from: https://covid.saude.gov.br/
5. Escobar AL, Rodriguez TDM, Monteiro JC. Letalidade e características dos óbitos por COVID-19 em Rondônia: estudo observacional. Epidemiol. Serv. Saúde; 2021; 30(1):e2020763.
6. Sousa AR, Santana TS, Carvalho ESS, Mendes IAC, Santos MB, Reis JL. Vulnerabilities perceived by men in the context of the Covid-19 pandemic. Rev. Rene. 2021; 22:e6029.
7. Griffith DM, Sharma G, Holliday CS, Enyia OK, Valliere M, Semlow AR et al. Men and COVID-19: A Biopsychosocial Approach to Understanding Sex Differences in Mortality and Recommendations for Practice and Policy Interventions. Prev. Chronic. Dis. 2020; 17:200247.
8. Takahashi T, Elligson MK, Wong P, Israelow B, Lucas C, Klein J et al. Sex differences in immune responses that underlie COVID-19 disease outcomes. Nature. 2020; 588:315-20.
9. Zarulli V, Jones JAB, Oksuzyan A, Lindahal-Jacobsen R, Christensen K, Vaupel JW. Women live longer than men even during severe famines and epidemics. Proc. Natl. Acad. Sci.. 2018; 115(14):E832-E840.
10. Souza LG, Randow R, Siviero PCL. Reflexões em tempos de COVID-19: diferenciais por sexo e idade. Comun. Ciênc. Saúde. 2020; 31(1):75-83.
11. Duarte, MQ, Santo MAS, Lima CP, Giordani JP, Trentini CM. COVID-19 e os impactos na saúde mental: uma amostra do Rio Grande do Sul, Brasil. Ciênc. Saúde Coletiva. 2020; 25(9):3401-3411.
12. Sousa AR, Araújo IFM, Borges CCL, Oliveira JA, Almeida MS, Caribé W et al. Saúde de homens na pandemia da Covid-19: panorama brasileiro. Rev. Baiana Enferm. 2021; 35:e38683.
13. Pérez CD. Aplicabilidade del modelo de adaptación de Sor Callista Roy em el cuidado de personas con COVID-19. Rev. Cub. Enferm. 2021; 37(1):e4222.
14. Patias ND, Hohendorff JV. Quality criteria for qualitative research articles. Psicol. Estud. 2019; 24:e43536.
15. Minayo MCS. Amostragem e saturação em pesquisa qualitativa: consensos e controvésrias. Rev. Pesq. Qual. 2017; 5(7):1-12.
16. Fontanela BJB, Luchesi BM, Saidel MGB, Ricas J, Turato ER, Melo DG. Amostragem em pesquisas qualitativas: proposta de procedimentos para constatar saturação teórica. Cad. Saúde Pública. 2011; 27(2):389-94.

17. Moller N, Clarke V, Braun V, Tischner I, Vossler A. Qualitative Story Completion for Counseling Psychology Research: A creative method to interrogate dominant discourses. JCP [Internet]. 2020 [cited 2021 Aug 04];68(3):286–298. Available from: https://doi.org/10.1037/cou0000538
18. Sousa AR, Alves GV, Queiroz AM, Florêncio RMS, Moreira WC, Nóbrega MPS, et al. Men's mental health in the COVID-19 pandemic: is there a mobilization of masculinities? Rev. Bras. Enferm. 2021; 74(1):e20200915.
19. Matta GC, Rego S, Souto EP, Segata J. Os impactos sociais da Covid-19 no Brasil populações vulnerabilizadas e respostas à pandemia [Internet]. Rio de Janeiro (RJ): FIOCRUZ; 2021 [cited 2021 May 10], 221 p. Informação para ação na Covid-19 series. Available from: https://doi.org/10.7476/9786557080320
20. Altena E, Baglioni C, Espie CA, Ellis J, Gavriloff D, Holzinger B, et al. Dealing with sleep problems during home confinement due to the COVID-19 outbreak: practical recommendations from a task force of the European CBT-I Academy. J. Sleep Res. 2020; 29(4):e13052.
21. Baglioni, C, Altena, E, Bjorvatn, B, Blom, K, Bhothelios k, Devoto A et al. The European Academy for Cognitive Behavioural Therapy for Insomnia: An initiative of the European Insomnia Network to promote implementation and dissemination of treatment. J. Sleep Res. 2020; 29(2):e12967.
22. Malta DC, Szwarcwald CL, Barros MBA, Gomes CS, Machado IE, Junior PRBS et al. La pandemia de COVID-19 y los cambios en el estilo de vida de los adultos brasileños: un estudio transversal, 2020. Epidemiol. Serv. Saúde. 2020;29(4):e2020407.
23. Barría RM. Enfermería y su papel fundamental en la vacunación contra COVID-19: Nuevo desafío en un escenario pandémico. Investir. Educ. Enferm. 2021; 39(3):e01.
24. Muniz VO, Araújo PO, Santana PPC, Sousa AR, Pedreira LC, Carvalho ESS. Self-care deficit among older men in the COVID-19 pandemic: implications for nursing. Rev Bras Enferm. No prelo 2021.

Care Perceptions in two ICU Nursing Care Delivery Models: A qualitative-comparative approach

Original article

William Iván López Cárdenas[1,7]
https://orcid.org/0000-0001-9369-562X

Natalia Andrea Henao Murillo[4,8]
https://orcid.org/0000-0001-5447-5616

Esteban Gil Vidal[2,7]
https://orcid.org/0000-0001-9492-6426

Rosa Milena Altamirano Ceron[3,7]
https://orcid.org/0000-0002-3981-0057

Yuly Andrea Santa Mejía[5,9]
https://orcid.org/0000-0001-8647-1441

Adriana Cristina Jurado Jiménez[6,9]
https://orcid.org/0000-0003-2759-0189

Care Perceptions in two ICU Nursing Care Delivery Models: A qualitative-comparative approach

Abstract

Objective. Analyzed in compared perspective perceptions about nursing care, nurse-patient interaction, and nursing care outcomes in two ICU nursing staff in a high-complexity hospital institution, whose Nursing are Delivery Models (NCDM) are differentiated by the proportion of nurses and nurse assistants (NA) per team and by the assigned tasks and responsibilities. **Methods.** Particularist ethnography with adaptation to virtual methodologies. It included the sociodemographic characteristics of 19 nurses and 23 NA, 14 semi-structured interviews, review of patients' clinical records, and a focus group. Coding, categorization, inductive analysis, validation of results with participants were conducted and thematic saturation was achieved. **Results.** Four themes were identified: i) Professionalized care: a nursing of superior value; ii) senses and feelings of care; iii) nursing workload, generating factors and

1 MSN, RN, Professor.
Email: wivan.lopez@udea.edu.co.
Corresponding author.

2 MSN (c), RN.
Email: thisban.gilv@udea.edu.co

3 BSN. Email: ros.altamirano@udea.edu.co

4 MSN, RN, Professor.
Email: nathyh75@gmail.com

5 MSN, RN, Director of Nursing
Email: Yuly.santa@sanvicentefundacion.com

6 MSN, RN, Director of Nursing
Email: cristina.jurado@sanvicentefundacion.com

7 Faculty of Nursing, Universidad de Antioquia,
Medellín (Colombia)

8 Universidad Católica de Oriente,
Rionegro (Colombia)

9 Hospital San Vicente Fundación,
Medellín (Colombia)

Received: 22 January 2022.

Approved: 3 October, 2022.

How to cite this article How to cite this article: López WI, Gil E, Altamirano RM, Henao NA, Santa YA, Jurado AC. Care Perceptions in two ICU Nursing Care Delivery Models: A qualitative-comparative approach. Invest. Educ. Enferm. 2022; 40(3):e15.

DOI: https://doi.org/10.17533/udea.iee.v40n3e15.

impacts; and iv) nursing missed care as concrete expression of the nursing workload. **Conclusion.** Compared nursing teams perceived nursing care in different ways, since it was experienced based on the assigned responsibilities and the possibilities of interaction with patients. Nursing care in the NCDM of the ICU with prevalence of direct bedside care by nurses with support from NA, it was perceived as holistic, comprehensive, and empathetic; whereas in the ICU with prevalence of delegated care to NA, it was related with administrative leadership and management of the ICU. Regarding the results, the NCDM of the ICU of direct bedside care by nurses showed better performance in patient safety and was closer to the skill level and legal responsibility of the nursing staff.

Descriptors: critical care nursing; clinical nursing research; nursing team; nursing services; nursing care; health services administration; nursing care delivery model.

Percepciones del cuidado en dos modelos de atención de enfermería en UCI: aproximación cualitativa-comparativa

Resumen

Objetivo. Analizar en perspectiva comparada las percepciones sobre el cuidado de enfermería, el relacionamiento con los pacientes y los resultados del cuidado en dos equipos de enfermería de UCI de una institución hospitalaria de alta complejidad, cuyos Modelos de Atención de Enfermería (MAE) se diferencian por la proporción de enfermeras y Auxiliares de Enfermería (AE) por equipo y por las tareas y responsabilidades asignadas. **Métodos.** Etnografía particularista con adaptación a metodologías virtuales. Incluyó la caracterización sociodemográfica a 19 enfermeras y 23 AE, 14 entrevistas semiestructuradas, revisión de historias clínicas de pacientes y un grupo focal. Se realizó codificación, categorización, análisis inductivo, validación de resultados con participantes y se logró la saturación temática. **Resultados.** Se identificaron cuatro temas: i) Cuidados profesionalizados: una enfermería de valor superior ii) sentidos y sentires del cuidado iii) carga de cuidado, factores generadores e impactos y iv) omisión del cuidado como expresión concreta de la carga de trabajo. **Conclusión.** Los equipos de Enfermería comparados percibieron el cuidado de enfermería de maneras distintas, pues se vivenció a partir de las responsabilidades asignadas y las posibilidades de relacionamiento con los pacientes. En el MAE de la UCI donde predomina el cuidado directo de enfermeras con apoyo AE, se percibió el cuidado como atención holista, integral y empática, mientras que en la UCI donde predomina el cuidado delegado a AE se relacionó con el liderazgo administrativo y la gestión de la sala de UCI. En cuanto a resultados, el MAE de la UCI de cuidado directo por enfermeras mostró mejor desempeño en seguridad del paciente y fue más cercano al nivel de competencias y de responsabilidad legal de los equipos de enfermería.

Descriptores: enfermería de cuidados críticos; investigación en enfermería clínica; grupo de enfermería; servicios de enfermería; atención de enfermería; administración de los servicios de salud, modelo de prestación de cuidados de enfermería.

Percepções de cuidado em dois modelos de assistência de enfermagem em UTI: uma abordagem qualitativo-comparativa

Resumo

Objetivo. Analisar em perspectiva comparativa as percepções sobre o cuidado de enfermagem, a relação com os pacientes e os resultados do cuidado em duas equipes de enfermagem de UTI de uma instituição hospitalar de alta complexidade, cujos Modelos de Assistência de Enfermagem (MAE) diferem pela proporção de enfermeiros e auxiliares de enfermagem (AE) por equipe e por tarefas e responsabilidades atribuídas. **Métodos.** Etnografia particularista com adaptação a metodologias virtuais. Incluiu a caracterização sociodemográfica de 19 enfermeiros e 23 EA, 14 entrevistas semiestruturadas, revisão de prontuários e grupo focal. Codificação, categorização, análise indutiva, validação dos resultados com os participantes foram realizadas e a saturação temática foi alcançada. **Resultados.** Foram identificados quatro temas: i) Cuidado profissionalizado: enfermagem de valor superior ii) sentidos e sentimentos do cuidado iii) sobrecarga do cuidado, fatores geradores e impactos e iv) omissão do cuidado como expressão concreta da carga de trabalho. **Conclusão.** As equipes de Enfermagem compararam o cuidado de enfermagem percebido de diferentes maneiras, uma vez que foi vivenciado a partir das responsabilidades atribuídas e das possibilidades de relacionamento com os pacientes. No MAE da UTI onde predomina o cuidado direto por enfermeiros com apoio do EA, o cuidado foi percebido como cuidado holístico, integral e empático, enquanto na UTI onde predomina o cuidado delegado ao EA, estava relacionado à liderança administrativa e gestão da sala da UTI. Em termos de resultados, o MAE da UTI de cuidado direto por enfermeiros apresentou melhor desempenho na segurança do paciente e se aproximou mais do nível de competências e responsabilidade legal das equipes de enfermagem.

Descritores: enfermagem de cuidados críticos; pesquisa em enfermagem clínica; equipe de enfermagem; serviços de enfermagem; cuidados de enfermagem; administração de serviços de saúde, modelo de assistência de enfermagem.

Introduction

Within a global scenario characterized by nursing shortage, hospital institutions face the challenge of developing nursing care delivery models (NCDM) that involve diverse nursing staff qualification levels, guarantee high quality standards, safeness, cost effectiveness, and job satisfaction.(1) The NCDM are ways in which nursing practice can be organized to care for patients, principally in hospital settings.(2)

In nursing literature, four classic NCDM are identified: Total Patient Care (TPC), Functional Nursing (FN), Team Nursing (TN), and Primary Nursing Care (PNC).(1) In the TPC model, the nurse is responsible for all patient care during a shift.(2) The FN model consists in the tasks distribution among the nursing staff in function of care complexity, knowledge, and skills required for its execution.(2) The TN model is comprised by personnel with different levels of experience and training, who also share the collective responsibility of care, optimizing skills, qualification, and team work.(3) In the PNC model, a nurse is responsible for coordinating a patient's continuous care throughout the length of stay.(1)

Characteristics of work environments, such as the proportion of nursing staff per unit, number of patients assigned, autonomy in decision making, and team work are predictive factors of results of the NCDM. Studies by Zhao *et al.,*(4) and Lake *et al.,*(5) showed inverse correlations between the characteristics of the work environments and omission of nursing care. Other studies have found associations among the composition of nursing staff, poor job satisfaction,(3) intention to switch jobs,(6) and the perception of low quality of care.(7) Teams conformed with a low proportion of nurses, large proportion of nurse assistants, and high nursing workload are associated with increased mortality,(8,9)length of stay,(8,9) readmissions,(9) increase of hospital-acquired infections, and adverse events.(8,10) In contrast, high assignment of nurses has been correlated with mortality reduction and positive perception of the quality of nursing care.(11)

Within the context of Colombian hospitals, the NCDM in Intensive Care Units (ICU) incorporate hybridizations of the aforementioned models. Regarding human resources, it must be highlighted that nursing work in Colombia is conducted under precarious working conditions, regional inequalities in the distribution of personnel, and lack of regulations on the functions of nurses —licensed personnel with university formation—, the functions of nursing assistants (NA) —unlicensed personnel with technical training of 2 600 hours— and on the patient- nursing ratio.(12) Regulatory gaps have had repercussions in displacing the work of nurses toward administrative-type actions and supervision of NA, which implies the forced allocation of most care provision to the NA and the conformation of work staff with a low proportion of nurses and a higher proportion of NA, affecting the quality and safety of care.(13) Moreover, in 2019, Colombia was ranked by the Organization for Economic Cooperation and Development as the country with the greatest shortage of nurses, with an indicator of 1.4 nurses per 1000 inhabitants.(14)

Some Colombian hospital institutions have been incorporating NCDM that involve a higher proportion of nurses for direct bedside care and a clearer definition between the roles and limits of the skills of nurses and nursing assistants. However, they have little scientific evidence to support their results, an aspect that motivated proposing this research, with potential contribution to the global discussion on professional practice environments that supports nursing autonomy and leadership, quality of care, and patient safety. The aim was to analyze in compared perspective, perceptions about nursing care, nurse-patient interaction, and.nursing care outcomes in two ICU nursing staff in a high-complexity hospital institution, whose NCDM are differentiated by the proportion of nurses and nursing assistants per team and by the assigned tasks and responsibilities.

Methods

Type of study. Interpretative particularistic ethnographic based on Boyle(15) for the description and contextual interpretation of the meanings attributed by the nursing staff to care provided from two NCDM in ICU. Adaptations were made of the field work to the virtual context given the social distancing norms due to the COVID-19 pandemic.

Setting. The research was conducted in two ICUs of a high-complexity Hospital located in Medellín-Colombia, which differ in the proportion of nurses, NA and in the functions assigned to each team. The study denominated as ICU-Nurse Team that with the highest proportion of nurses responsible for patient care and a lower proportion of NA dedicated to comfort functions; and as ICU-Assistants team that with a high proportion of NAs responsible for most of the patient care, and a low proportion of nurses with a large volume of administrative tasks, responsible for supervising NAs and some high-complexity nursing care.

Participants. The research team was made up by professors from Universidad de Antioquia, Universidad Católica de Oriente, Directors of Nursing from the Hospital, and nursing students. Participant inclusion criteria: nursing staff with at least one-year seniority in ICU-Nurses or ICU-Aides, performing bedside patient care functions or care management.

Data collection. Data collection was carried out between June 2020 and May 2021. A virtual sociodemographic characterization survey was applied to 20 nurses and 33 NA, obtaining an 80% response rate. Thereafter, semi-structured interviews were conducted via Google Meet to five NA and nine nurses and a virtual focus group with six nurses and five NA. The observations were complemented with the revision of clinical records to identify differences with respect to functions, clinical records filled out, and completion of the care plan.

Data analysis. By following Wolcott,(16) data coding and categorization was performed through inductive processes, bearing in mind the sampling and theoretical saturation. The findings were validated with the participants.

Ethical aspects. The protocol was subjected to evaluation by the Ethics Committee of the university institution responsible for the research and obtained ethical endorsement in July 2019. Four virtual socialization meetings were held with the staff from both ICUs to introduce the study and the potential participants received an informed consent where they manifested their voluntary intention to participate. Also, identities were protected by substituting the names of the participants with alphanumeric codes.

Results

Figure 1 presents the four emerging themes in the study stemming from a set of concentric circles from the center to the periphery. The central circle represents the theme of *Professionalized care: nursing of superior value*, which shows the differential characteristic of the NCDM and the teams compared. The following ring presents the *senses and feelings of care*, that is, the perception about care for nurses and NA in each of the teams according with the nursing staff: patient ratio and the functions assigned. The third and fourth rings present two categories related with the work environments where teams compared carry out their work: *nursing workload, generating factors and impacts*, and *nursing missed care as concrete expression of the work burden.*

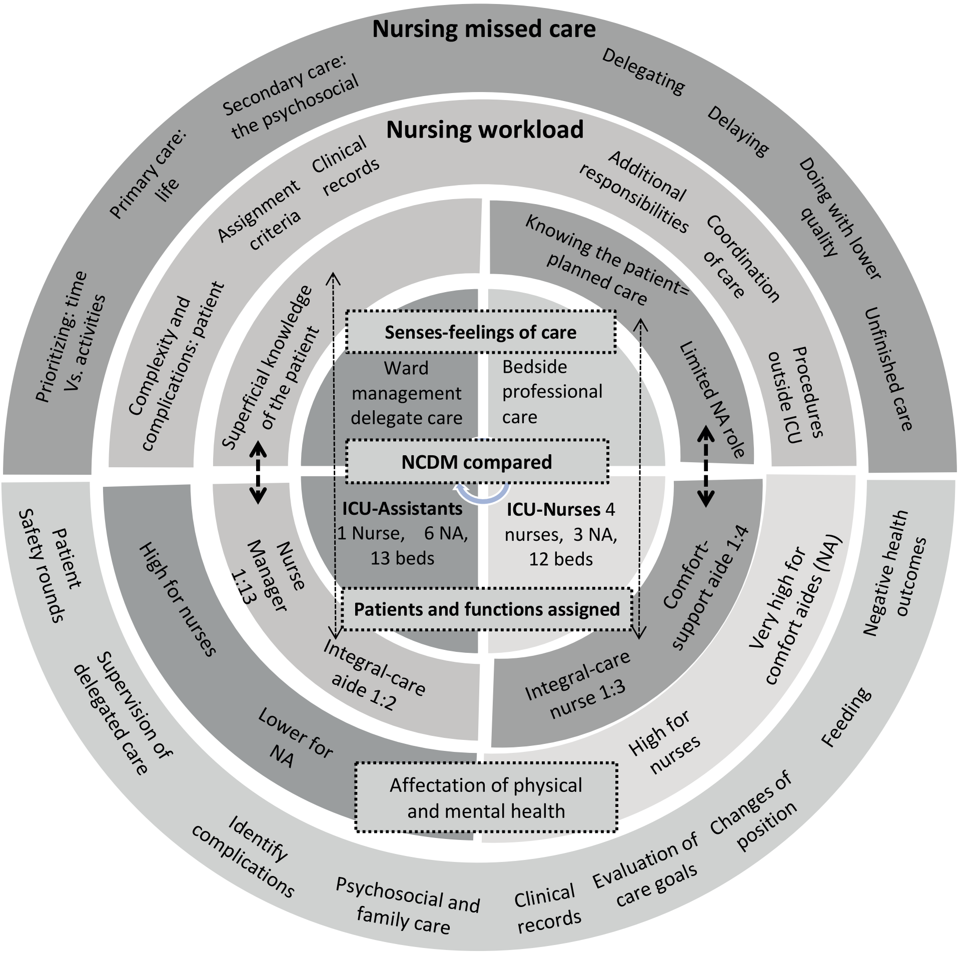


Figure 1. Schematic of thematic relations and analysis categories

Characteristics of the participants. Nurses constitute 64% of the staff in the ICU-Nurses and 25% in the ICU-Assistants. The proportion of NA is 36% in the ICU-Nurse team and 75% in the ICU-Assistants team. The mean time of job experience in both ICUs presents great variability, with values between 1 and 25 years for nurses in the ICU-Nurses team; between 1 and 6 years for nurses in the ICU- Assistants team; and between 1 and 25 years for NA in the ICU- Assistants team, indicating high personnel rotation. The NA in the ICU-Nurses team showed the lowest mean in work experience and age, with little variability in both variables, which suggests that majority in this group is quite young and has little work experience (Table 1).

Table 1. Sociodemographic characteristics of the study's ICU staff

Variables		ICU-Nurses		ICU- Assistants	
		N	%	*N*	%
Job profile	Nurse	14	64	5	25
	NA	8	36	15	75
Sex	Masculine	2	9	1	5
	Feminine	20	91	19	95
Educational level	Technical-NA	8	36	15	75
	University	8	36	3	15
	Graduate	6	28	2	10
		Mean	**SD***	**Mean**	**SD***
Age	Nurse	34	7.7	31	4.5
	NA	23	2.3	32	7.7
Years of ICU experience	Nurse	3.5	4.2	2.8	2.2
	NA	2.6	0.8	8.0	7.5

* Standard deviation

Theme 1. Professionalized care: superior value nursing

Between 2017 and 2020, a change in the performance of nursing work was carried out in the institution, framed in the provision of direct bedside care by nurses, to provide safe, integral, personalized and high-quality care. The NCDM implemented in the ICU-Nurses team sought to strengthen nurses' skills for care and leadership and offer planned care, sustained on clinical judgment and disciplinary knowledge. From the organizational point of view, the intention was to position the hospital as a cutting-edge institution in care and patient safety: *one of the objectives of this form* *of bedside care work is to have reachable goals that are measurable in care for patients* (E001). Prior to implementing the new NCDM, the hospital had a low proportion of nurses and the NAs were responsible for providing most of the care. The teams in the ICUs compared were comprised by one nurse and six NA for 12-13 beds (Table 2). The new NCDM was implemented gradually in half the hospital wards, diminishing the proportion of NA and increasing that of nurses 24 hours per day. The ICU-Nurses team established the 1:3 nurse-patient ratio and 1:4 NA-patient ratio and added a daytime coordinator, while the ICU-Assistants team is in the wards where the existing NCDM was not modified, with 1:13 nurse-patient ratio and 1:2 NA-patient ratio.

Table 2. Comparison of the number of beds and nursing staff assigned in the ICUs compared

Service	N° beds	Professional profile	Staff assigned per shift		
			Before	During NCDM	Post-NCDM
ICU-Nurses	12	NA	6	3	6
		Nurse	1	4 + 1 daytime administrative coordinator	2 daytime and 1 at night
ICU-Assistants	13	NA	6	6	6
		Nurse	1	1	2 daytime and 1 at night

Implementation of the NCDM generated positive results for nurses and patients in the ICU-Nurses team. Nurses reported increased leadership, expertise, and technical skills to perform reflexive care practice. Care revived and reaffirmed their professional identities as care nurses: *we gain much, we gain leadership, experience, we manage to again revive that vocation for which we study, which is care for another* (E01). The NCDM established care coordination mechanisms, like interprofessional rounds between physicians and nurses, safety rounds, measure packages, quality committees, actions for improvement and continuous training of the human talent. These measures permitted timely identification and intervention of warning signs and complications of patients. According with the participants, decreased rates of adverse events and infections associated with health care were evidenced in the ICU-Nurses team: *We have reflected this in the indicators. For example, we have had a year without pneumonia; we managed to have a year without bacteremia* (E02).

During the implementation process of the NCDM by the ICU-Nurses team unplanned contingencies emerged as maladjustment experiences, fear, anxiety and resistance to change due to frequent modifications in processes, functions, work routines, and in the number of patients assigned: *We had a thousand meetings, we had a thousand accompaniments and that was very hard to organize. The first year was total chaos (B04).* The model's learning and appropriation curves were slower than expected because the model was implemented with new personnel, without work experience, and because it required a cultural change of a historical role from administrative nurse to one of caring nurse: *It was a difficult process, given that most of the new arrivals were recent university graduates, without experience; then, the responsibility was on the nurses who had been previously in the Unit (C13).*

To end, it must be highlighted that the NCDM implemented in the hospital institution only has documentary support that describes the profile and functions of nurses and NA, hence, it does not have any referent of the body of nursing knowledge that guides their actions; although, in practice, tools are used, like the nursing-care plan. No measurements were made of the economic and epidemiological impact derived from improving the quality of care: *showing the savings that we have when we manage to lower infections, when we diminish adverse events, and when we diminish the length to stay of patients in the units is a path we still need to travel* (E03).

Theme 2. Senses and feelings of care

The number of patients and functions assigned configure differentiated ways of comprehending nursing care and nurse-patients interaction. With a 1:3 nurse-patient ratio, nurses in the ICU-Nurses team have a holistic vision of care based on the link and comprehensive knowledge of the patient and in the provision of planned care according to physical, social, and emotional needs, based on clinical judgment, nursing diagnoses, and care goals that guide interventions during the shift: *we use goals according to patient's diagnosis and what I want to achieve in my shift with that patient… It is integral care and a very personalized approach* (E05).

Among the nurses' functions, there are the integral assessment of patients during each shift, elaboration and follow-up of the care plan in the clinical history, monitoring, identification and intervention of risks and complications, interaction and education of the family, accompanying diagnostic procedures, administration of medications, care of the air way, invasive procedures, such as insertion of probes, catheters, dressings and assistance in Cardiopulmonary Resuscitation. The ICU-nurses team has a coordinator on business days and daytime hours responsible for the ward's administrative management, assignment of patients to work teams, coordination of care with the medical staff, and evaluation of the results of care. The coordination role favors nurses having more time available to dedicate to caring for patients.

The NAs from the ICU-Nurses team have a 1:4 NA-patient ratio, complement nursing care with activities of comfort, monitoring, and basic patient care on aspects like hygiene, feeding, prevention of pressure wounds, balance of liquids, and hourly control of vital signs. The NA consider the ICU a complex space that is motivating and generator of learning. The technological setting and the patient's complexity are perceived as challenges to develop skills and knowledge, which instills fear during the initial approaches to the ICU, considering that the vast majority has little prior work experience: *At the beginning you get scared. It is a bit hard because of the types of patients we get* (A01). With respect to their work, the NA from the ICU-Nurses team manifested the sense of under-estimation of their capacity to provide care when compared with the NA from the ICU-Assistants team, given that the first receive lower salaries and their role focused on comfort is contrary to their job expectations in a technological setting, like the ICU.

In contrast, in the ICU-Assistants team, one nurse is responsible for 13 patients and experiences the practice from a conception of administrative leadership, given that most of the nurse's time is spent on clinical management functions, although performing some specialized nursing procedures, like taking blood cultures, blood gases, complex cures, and assistance in invasive medical procedures. This form of care is characterized by the obligatory delegating a broad range of care interventions to the NA without bearing in mind their levels of knowledge and skills, by supervising the work of the NA, and by a superficial level of the nurse's involvement in knowing the patient and in planning the care; in many shifts, they do not even get to know their patients in charge: *the current model that I am in is more of leadership and management, although you get to accompany many procedures, it has a more global vision of the patients… it is difficult to care for all patients in integral manner* (E04).

Finally, the ICU-Assistants team showed a 1:2 NA-patient ratio; the NA must assume providing most of the nursing care required by their patients that include activities not in accordance with their level of knowledge and skills, like administration of medications, sedation, inotropes and parenteral nutrition, aspiration of secretions, early identification of complications, manipulation of invasive devices and dressings. Constant bedside accompaniment to patients allows them to conceive care as the possibility of accompaniment and satisfaction of needs from human dignity: *What does nurse care mean? For me, I believe it is everything in those patients because we fulfill all the needs or human worthy conditions, like hygiene, being comfortable, that someone is looking out for you, being here with you, feeling you, talking with you* (A02).

Theme 3. Nursing workload: generating factors and impacts

Nursing workload was a common characteristic in the ICUs compared. It derives from factors like assignment criteria, number and severity of patients, parallel responsibilities to care, and from the possibility of effective coordination of the work teams. The allocation of patients is made by geographical proximity in both ICUs, without using criteria, like measurement of workload or severity of the patients, which leads to unequal distribution of the most-complex patients among the staff in the ICUs. For the nurses in the ICU-Assistants team, the workload-generating activities in which they spend most of their work time are taking blood cultures, accompanying the medical rounds of 13 patients, and assisting physicians during invasive procedures or during cardiopulmonary resuscitation. Nurses in the ICU-Nurses team consider their caregiving responsibilities to be overwhelming given that compared with the NA in the ICU-Assistants team, they are responsible for more patients and bedside-care functions, like elaborating the care plan: *since we started the model, one tries to do things more consciously and tries to do them better, it takes a little longer (E02).*

The NA in the ICU-Nurses team consider the assignment of four patients to surpass their capacity to provide the care required, thus, they experience physical and emotional fatigue, stating that they use up half the shift in bathing their patients. The NA in the ICU-Assistants team reported feeling comfortable and without overburden to provide care to their two patients assigned, except for the person who has an additional patient, which produces mental overburden and affectation in the quality of care provided. *There are 13 patients, they day you had that odd-patient there was a more mental workload, it is not the same to take care of two than to take care of three. The quality of care is not the same* (A04).

The NA and nurses in both ICUs have additional responsibilities that increase the workload like cleaning equipment, counting medications and medical supplies, custody of elements of the service, accompanying the transfer of patients to surgeries or diagnostic exams, and elaborating multiple registries in the clinical chart. The nursing staff arrives earlier than usual to their work day or extend their work day until after the work shift is over to comply with these obligations. *Many colleagues ended up leaving the institution two hours later because they had many things to do, especially the system's registry* (E04).

Coordination of care among the nursing staff is a determining factor of the increase or decrease of the workload. When the NA in the ICU-Assistants team have to transfer any of their patients to a procedure outside the ICU, they get support from their colleagues to care for the other patient. In the ICU-Nurses team, it was expected for NAs and nurses to work in pairs to provide care, like changes in position, however, this articulation is not achieved because both profiles are attending to the urgent needs of their patients and because all NA having four patients assigned, must coordinate their work with two nurses. *I have three patients with one nurse and the other with a different nurse. So, it was two nurses that called out "come" and that became total chaos* (A03).

Both ICUs are perceived as environments that generate emotional and physical burden due to the constant closeness with the deaths of patients, restriction of their own needs like going to the restroom or eating to prioritize those of the patient, besides the physical fatigue that prevents enjoying other moments beyond work: *one always prioritizes the patients first prior to going to the restroom, before going for a meal; when you least expect, it is four in the afternoon and you have not had lunch* (E06).

Theme 4. Missed nursing care as concrete expression of the work burden

This understood as the impossibility to provide all the care patients require within a context of overload, which obligates the nursing staff from both ICUs to make decisions regarding the care that must be prioritized, having to delay or miss the rest of the interventions. As a common point, the nursing staff prioritize patients to care for and care to be provided based on criteria, like the state of health and complications of the patients. Care for unstable patients, taking blood cultures, and administration of medications are fundamental to sustain life and cannot be missed. In contrast, stable patients receive less time of care and, consequently, lower quality of care: *you stay in that cubicle all day and the other patients lose out… you cannot take care of the other patient* (A03).

On a second level of prioritizing, there is a group of cares denominated by the participants as secondary, covering psychosocial and family care; activities of comfort, clinical records (including care plans), and actions for patient surveillance. These actions tend to be omitted, delayed, diminishing their frequency, or carried out with less quality: *Primary care would be the fundamental care, those that must be done now or now! That the patient has low blood pressure, it is now or now! I must stabilize the blood pressure, administer an inotrope… But the others that I am leaving would be like secondary care… the psychosocial issues of the person, which integrate the patient's family* (E5). Lack of time do not allow nurses in the ICU- Assistants team supervising and accompanying the NAs, conducting patient safety rounds, and filling out the care plan (an aspect verified in the revision of medical records). The aspects mentioned have negative implications for the quality and coordination of care between the nurse and her NAs: *we assign specific supervision functions, conduct safety rounds, evaluate the BUNDLES; we do not even comply with those functions because time absorbs us so much… there are functions assigned to the NA by the hospital… and one notices that there is no time for supervision* (E04).

In turn, the NA in the ICU- Assistants team prioritize care of the biological sphere, like administration of medications, aspiration, and sedation. Care most-often delayed or omitted include feeding, changes of position, and registries in the system and these delays occur when they have to leave the ward to accompany another patient to a procedure or when another patient shows some complication. Awake patients are considered as demanding care, such as feeding: *patients that are quite autonomous we have to help them to feed very often and it is very complicated because the feeding of these patients gets delayed while one is doing something else (B24)*.

In the ICU-Nurses team, missing care is expressed by nurses not being able to comply with the goals proposed in the care plan: *If I don't have the time to dedicate the 15 minutes he needs for the breathing incentive, I won't achieve the goal, which was to remove his oxygen (E05)*. The seriousness of a patient and the follow-up to diagnostic procedures outside the ward are the factors that most generate workload and missed care.

Coordination and continuity of care are generating factors of undone activities for nurses in the ICU-Nurses team. Revision of clinical histories is a frequently delayed activity, and in some cases, when physicians do not communicate their prescription to nurses, these become aware of changes in the management of patients at the end of the shift. With respect to the continuity of care, nurses are assigned different patients during each shift and rarely do they have a chance to give continuity to their goals and interventions. There is also no continuity for the care plan among nurses in the different shifts, given that each establishes their own care goals and actions without contemplating those established by their colleagues from the previous shift. In turn, NAs in the ICU-Nurses team reported that care most-often delayed, omitted, or performed with lower quality include feeding, hygiene, changes of position, measurement and disposal of collection systems: *you don't have enough time to spend every hour removing residues from the bladder catheter and, for example, we must perform the change of position every two hours, not lately (B001)*. In patients, omission is expressed in the times they stop receiving care, with consequences, like occurrence of adverse events, prolonged length of stay, and complications: *we had completed one year without pneumonia, we reviewed the case and effectively the hygiene [oral cavity] of these patients had not been done on certain moments (E02).*

To conclude, providing care against the clock generates feelings of guilt and frustration in the nursing staff from both ICUs, given that missed care distances them from desired ideal of care: *It is too frustrating, as much as I would like to split myself in three and do to everyone what needs to be done, sometimes things have to be done quickly, not with the love and dedication one would want do it* (A03).

Termination of the NCDM in the hospital

In 2020, the gradual dismantling of the NCDM began for reasons of institutional financial sustainability. ‚At the end of the NCDM the previous NAs standard and their integral patient care responsibilities were re-established . It also returned to the assignment of nurses prior to the model, although for the ICU-Nurses team and ICU-Assistants team a nurse was added as daytime support (Table 2). The staff from the ICU-Nurses team expressed missing the care organization promoted during NCDM validity, given that it allowed nurses to get deeply involved in care, as they learned at the university, while the NAs returned to a higher level of responsibility with patients under a scheme of supervision, which is why they consider not having the accompaniment of nurses for cooperative care. The nurses from the ICU-Assistants team manifested that, in spite of having support from an additional nurse since the re-structuring of the NCDM, the possibility of performing integral care similar to that carried out in the ICU-Nurses team continues being quite limited due to the number of patients assigned.

Discussion

Comparing the ways of working from the four categories exposed permits identifying two central points of debate: implementation of an NCDM close to the professional practice desired and the influence of work environments on the quality and safety of care. The NCDM implemented in the ICU-Nurses team configured a role of care nurses by permitting a distribution of functions according with the level of legal responsibility, knowledge, and competence among the profiles integrating the work staff. Responsibility for providing care in this model was assigned to nurses, an aspect that reaffirmed their identity as caregivers, enhanced their autonomy and leadership, allowing them to offer empathetic and planned care from a holistic perspective. The NAs participated within a model with a role of articulation and support to nurses in actions of basic monitoring, hygiene, and comfort, which constitute responsibilities according with their level of training and skills.

According with Fawcett,(2) this NCDM shares some characteristics of the Team Nursing upon articulating nurses and NAs in individualized and integral patient care, optimizing the skills and resources of the work team for the quality of care. The perceptions about the care provided by the nurses in the ICU-Nurses model coincide with the study by Zamaniniya *et al.,*(17) who state that the practice of humanistic care in ICU generates feelings, such as personal growth, self-realization, satisfaction, motivation and development of ethical competencies in nurses. In this sense, authors, like Stavropoulou *et al.,*(18) identified as pillars of empathic care in the ICU the capacity to listen to patients, experience their feelings, understand them and help them to ease uncertainty.

The NCDM by the ICU-Assistants team assigned the nurse a role as manager and ward supervisor, which implies superficial knowledge of patients and of their care needs due to the forced delegation of the majority of care to the NAs, whose functions and responsibilities assigned overcome their knowledge and level of competence. These particularities fit within the model of Functional Nursing described by Fawcett,(2) where care is fragmented among staff members and is distanced from holistic care. The defining characteristics of this NCDM were identified in the analysis of the nursing panorama in Colombia as conducted by Ortega and Jiménez,(13) who found that most of the care in ICU requiring specialized knowledge and techniques are performed by NA; likewise, the authors indicate that nurses must delegate to NAs approximately 44% of the care of the physiological sphere that are considered by themselves as non-delegable. They also stated that the administrative work in which nurses invest the greatest amount of time could be carried out by health administrative assistants. This global problematic also emerged during the systematic revision by Blay and Roche,(19) who identified more than 200 activities delegated to NA that go beyond their training level and are conducted under limited supervision by nurses.

The comparison made permits concluding that the NCDM by the ICU-Nurses team approaches the professional practice desired in the Colombian context, understanding that the organization of work between nurses and NAs was coherent with their competencies and skills, offering better standards of quality and safety in care. However, it is worth highlighting some elements that limited the potential of the NCDM as organization tool of nursing work: a volume of patients assigned to nurses and NAs, which generates workload and omissions or delays in care, the absence of a guiding framework of the NCDM sustained in nursing models and theories, and the lack of measurements related with their economic and epidemiological outcomes.

As second point of debate, a common feature for both NCDM was work environments that compromised care quality and safety. In both ICUs, the number of patients and responsibilities assigned (some not related directly with care) generated multiple demands, limited the time and resources available from the nursing staff to provide holistic care, generated fatigue and overwhelm, and could be related with the personnel rotation identified in the description of the participants' characteristics. These factors have been identified in the analysis of barriers to empathic care by Stavropoulou *et al.*,(18) among which there are lack of staff, increased workload, and fatigue. Some feelings emerging from the reports regarding the work overload agree with the findings by Chetty(20) and Banda *et al.*,(21) who indicate that the workload causes a negative psychological impact on ICU nurses, manifested by anger and discouragement, emotional overburden, stress and impossibility to conciliate personal and work life. Chetty(20) also referred to the intention of leaving work and to the staff rotation as outcomes of the overburden experienced by the nurses.

Additionally, the study by Subhi(22) highlights that the nursing staff must be in charge of many things at the same time, making it difficult to complete all their activities, which affects the capacity to care for others. Thus, the omission or delay of nursing care is introduced as a specific indicator of work overload, which affects negatively on the quality of care and patient safety. As with the system of prioritizing care identified by Banda as response to workload,(21) the ICUs compared privileged care of the biological sphere over the patient's psychosocial needs, which could result in a less humanistic and more instrumental vision of care. In the nurses from the ICU-Nurses team omissions in the follow-up of care plans or education of the family distanced the work of nurses from holistic care, while for nurses from the ICU-Aides team, the impossibility to plan care, supervise that delegated, and implement prevention actions, like safety rounds or follow-up to bundles had negative implications on patient safety. For the NAs from both ICUs, omission of care related with hygiene and comfort resulted in adverse events, such as pressure wounds and pneumonia associated with ventilation. The members from both nursing teams reported feelings of frustration due to omission and delay of care, which distanced them from their ideal of patient care.

Similar findings have been reported in other qualitative research, evidencing that missed care is a global problematic and a challenge to improve the quality of health care. In this sense, Suhonen *et al.*,(23) describe prioritizing of medical needs as an aspect that removes the nursing staff from a humanistic practice. Lake *et al.*,(5) and Kalish(24) reported that care that is delayed or omitted most frequently encompass activities of daily life, like hygiene, changes of position and comfort, delay in some medications, communication and emotional support, education to the patient and the family. Feelings of guilt and job dissatisfaction derived from the missed care, defined by Janatolmakan and Khatony(25) also coincide with the feelings expressed by nurses and NA participating in the study.

To close this second point of debate, we summarize the findings about generating factors of work overloud and omission of care that emerged within the context of the NCDM compared and which have been identified in other qualitative research: characteristics of the patient (complexity, emergency situations),(21) of the nurse (time of experience, skills in prioritizing and delegating, articulation with NAs in decision making about care)(21) and of the work environment (staff shortage, workload, time invested in tasks not related with nursing, coordination of care with NA and medical staff).(25)

To end, the following were indicated as study limitations: i) no institutional information was found that accounted for the planning and operation of the NCDM proposal of the ICU-Nurses team to triangulate such with the reports by the nursing staff and ii) adaptation of the field work to virtual methodologies in response to the COVID 19 pandemic restricted the possibility conducting participant observation and face-to-face interviews, aspects that would have permitted a more-profound vision of the institutional context, work environments, and the implementation of the NCDM compared.

Regarding the contributions of the research, the results invite to improving hospital care processes by implementing NCDM and work environments that promote nursing autonomy and leadership to reach high levels of care quality and patient safety. These results also raise new questions to contribute from the investigation to the knowledge of the ethical and moral implications of missed care, the experience patient-centered care, and to deepen from quantitative methods the relationship among the NCDM, work environments, assignment of staff, patient and nursing staff outcomes. Consequently, it becomes necessary to derive knowledge from the disciplinary research to assist regulations and make administrative decisions on nursing work in the local and global scenarios.

In conclusion, the nursing teams compared perceived nursing care differently, given that this is experienced from the responsibilities assigned and possibilities of relating with patients. In the NCDM of the ICU-Nurses team, care was perceived as holistic, comprehensive, and empathetic care; while in the ICU-Assistants team, care was related with administrative leadership and management of the ICU ward. Regarding results, the NCDM in the ICU-Nurses team showed better performance in patient safety and was closer to the level of skills and legal responsibility of the NAs and nurses, in comparison to the NCDM in the ICU-Assistants team.

The experience of the NCDM developed in the ICU-Nurses team provides elements to rethink new possibilities of organizing nursing work in Colombian hospitals that are coherent with the level of training, experience, and skills of the teams of nurses and NAs, with the number of patients and functions assigned, which promote holistic care and reaffirm the autonomy, leadership, and caregiver identity of the nurses. Considering the positive results for the nursing staff and for patients of the NCDM of ICU-Nurses teams, it is recommended that the hospital institution, where said experience was carried out, to conduct complementary research from a quantitative approach and in retrospective perspective that permits evidencing the economic and epidemiological impact of enhancing the quality of nursing care, as well as establishing the impact of bedside care by nurses in the patient's health results.

References

1. Prentice D, Moore J, Desai Y. Nursing care delivery models and outcomes: A literature review. Nurs. Forum. 2021; 56(4):971-9.
2. Fawcett J. Thoughts About Models of Nursing Practice Delivery. Nurs. Sci. Q. 2021; 34(3):328-30.
3. Goh PQL, Ser TF, Cooper S, Cheng LJ, Liaw SY. Nursing teamwork in general ward settings: A mixed-methods exploratory study among enrolled and registered nurses. J. Clin. Nurs. 2020; 29(19-20):3802-11.
4. Zhao Y, Ma D, Wan Z, Sun D, Li H, Sun J. Associations between work environment and implicit rationing of nursing care: A systematic review. J. Nurs. Manag. 2020; 28(8):1841-50.
5. Lake ET, French R, O'Rourke K, Sanders J, Srinivas SK. Linking the work environment to missed nursing care in labour and delivery. J. Nurs. Manag. 2020; 28(8):1901-8.
6. Cho SH, Lee JY, You SJ, Song KJ, Hong KJ. Nurse staffing, nurses prioritization, missed care, quality of nursing care, and nurse outcomes. Int. J. Nurs. Pract. 2020; 26(1):e12803.
7. Bridges J, Griffiths P, Oliver E, Pickering RM. Hospital nurse staffing and staff-patient interactions: an observational study. BMJ Qual. Saf. 2019; 28(9):706-13.
8. Almenyan AA, Albuduh A, Al-Abbas F. Effect of Nursing Workload in Intensive Care Units. Cureus. 2021;13(1): e12674.

9. Lasater KB, Sloane DM, McHugh MD, Cimiotti JP, Riman KA, Martin B, Alexander M, Aiken LH. Evaluation of hospital nurse-to-patient staffing ratios and sepsis bundles on patient outcomes. Am. J. Infect. Control. 2021; 49(7):868-73.
10. Duffield C, Twigg D, Roche M, Williams A, Wise S. Uncovering the Disconnect Between Nursing Workforce Policy Intentions, Implementation, and Outcomes: Lessons Learned from the Addition of a Nursing Assistant Role. Policy Polit. Nurs. Pract. 2019; 20(4):228-38.
11. Aiken LH, Sloane D, Griffiths P, Rafferty AM, Bruyneel L, McHugh M, Maier CB, Moreno-Casbas T, Ball JE, Ausserhofer D, Sermeus W; RN4CAST Consortium. Nursing skill mix in European hospitals: cross-sectional study of the association with mortality, patient ratings, and quality of care. BMJ Qual. Saf. 2017; 26(7):559-68.
12. Colombia, Ministerio de Salud y Protección Social. Resolución 0755 de 2022, por la cual se adoptan la Política Nacional de Talento Humano de Enfermería y el Plan Estratégico 2022-2031" para el fortalecimiento del talento humano en salud. Bogotá: El Ministerio; 2022.
13. Ortega M, Jiménez A. Situación actual de enfermería en Colombia una reflexión. Rev. Ocupación Humana. 2020; 9(1):28-38.
14. OECD. Health at a Glance 2021: OECD Indicators. Paris: OECD Publishing; 2021.
15. Boyle J. Estilos de Etnografía. Capítulo 9. In: Morse J. (Ed.). Asuntos críticos en los métodos de investigación cualitativa. Editorial Universidad de Antioquia: Medellín; 2003.
16. Wolcott, H. Transforming Qualitative Data: Description, Analysis and Interpretation, Sage Publications: Thousand Oaks. 1994.
17. Zamaniniya Z, Khademi M, Toulabi T, Zarea K. The outcomes of humanistic nursing for critical care nurses: A qualitative study. Nurs. Midwifery Stud. 2021; 10:114-20.
18. Stavropoulou A, Rovithis M, Sigala E, Pantou S, Koukouli S. Greek nurses' perceptions on empathy and empathic care in the Intensive Care Unit. Intensive Crit. Care Nurs. 2020; 58:102814.
19. Blay N, Roche MA. A systematic review of activities undertaken by the unregulated Nursing Assistant. J. Adv. Nurs. 2020; 76(7):1538-51.
20. Chetty K. The Cost of Caring: ICU Workload Stressors and the Saudi Arabian Nurse. Health Sci. J. 2021; 15(1): 811.
21. Banda Z, Simbota M, Mula C. Nurses' perceptions on the effects of high nursing workload on patient care in an intensive care unit of a referral hospital in Malawi: a qualitative study. BMC Nurs. 2022; 21(1):136.
22. Subhi H. Enablers and challenges of caring in the Intensive Care Unit–Part 2: In relation to nurses. J. Nurs. Educ. Pract. 2022; 12(2):18.
23. Suhonen R, Stolt M, Habermann M, Hjaltadottir I, Vryonides S, Tonnessen S, et al. Ethical elements in priority setting in nursing care: A scoping review. Int. J. Nurs. Stud. 2018; 88:25-42.
24. Kalisch BJ. Missed nursing care: a qualitative study. J. Nurs. Care Qual. 2006; 21(4):306-13.
25. Janatolmakan M, Khatony A. Explaining the experience of nurses on missed nursing care: A qualitative descriptive study in Iran. Appl. Nurs. Res. 2022; 63:151542.
26. Tang CJ, Lin YP, Chan EY. 'From Expert to Novice', Perceptions of General Ward Nurses on Deployment to Outbreak Intensive Care Units during the COVID-19 Pandemic: A Qualitative Descriptive Study. J. Clin. Nurs. 2021. doi: 10.1111/jocn.16029.

Reflection article

UNIVERSIDAD
DE ANTIOQUIA
1803

Primary Health Care. Specific Nursing Leadership

José Ramón Martínez-Riera[1]
https://orcid.org/0000-0002-4926-6622

The 1978 Alma-Ata International Declaration (Kazakhstan – former Soviet Socialist state),(1) was a turning point, at least regarding the conception of what was understood by primary health care (PHC) and what it should contribute to respond to the needs and demands of the population. The Declaration considered it, not only possible, but was aimed at achieving health for every country by the year 2000. The approaches to achieve this, although praiseworthy and difficult for anyone to reject, led to its signing by the 134 countries and 67 international organizations present at the meeting – highlighting the important absence of the People's Republic of China-, the intention was to stop financing rearmament policies and support for military conflicts and direct policies to promote independence, peace, *détente* and disarmament, to use those resources in the social and economic

---

[1] Nurse, Full professor, Universidad de Alicante; Spain. President Community Nursing Association (AEC, for the term in Spanish). Email: jr.martinez@ua.es

How to cite this article: Martínez-Riera JR. Primary Health Care. Specific Nursing Leadership. Invest. Educ. Enferm. 2022; 40(3):e16.

DOI: https://doi.org/10.17533/udea.iee.v40n3e16.

development of the people and invest on PHC, as essential element to achieve it.

But beyond these proposals with an eminently political nature and always subject to the interests and developments of social, economic, and demographic events… it is important to highlight something that unfortunately has received enough importance and visibility, such as the express request for health professionals to commit to promoting PHC in every corner of the planet. Something that was to be key in the evolution of PHC, although with unequal enthusiasm, involvement, and commitment by the main professionals from the different disciplines that made up the PHC staff.

The years after the Alma-Ata Declaration brought about an infinity of reactions from the member states, health professionals, the pharmaceutical industry, trade unions, and the different organizations representing citizens and users of the health systems, so that initiating and developing the strategy proposed in the Declaration was a path strewn with obstacles. Voices of detractors and supporters emerged. The positioning arguments of the different institutions that, with a progressive vision, defended the strategy focused the discourse and little by little a timid but continuous impulse was implanted in the countries that lacked it and where it was necessary to refocus primary medical care, for the implementation of PHC as the population's first contact with the National Health System.

The 1980s saw the establishment of a conservative hegemony initiated by Ronald Reagan and Margaret Thatcher, which quickly triumphed and is still largely in force today. Such was based on two objectives: general privatization and the triumph of social individualism. This resulted in the state's abandonment of social responsibilities and disappearance of the concept of "social" as the right of people to a fair distribution of wealth. Let us recall, herein, the famous quote by the "Iron Lady": *There's no such thing as society, there are only individual men and women and families*.(2)

After 20 years since the enactment of the Declaration and for the purpose of evaluating the objectives proposed in it for the year 2000, the international community, during the Fifty-first World Health Assembly held in May 1998, adopted a new Global Health Declaration in which its members, through five articles, recognize *"that the enjoyment of the highest attainable standard of health for a human being is a fundamental right; that they join the ethical principles of equity, solidarity, and social justice".*(3) For this, they reformulate the initial objective of the Alma-Ata Declaration, moving on to proposing the "Health for All (HFA) in the 21st century" through pertinent regional and national policies and strategies and committing to strengthening, adapting, and reforming the sanitary health systems, ensuring the essential PHC elements, adopting for such a new commitment by the undersigning countries.

After 40 years of the Alma-Ata Declaration, a new declaration is signed, the Astana Declaration,(4) that charts the path to achieve universal health coverage. In October 2018, the meeting took place in Astana (Kazakhstan) under the auspices of the World Conference on Primary Health Care, Heads of State and Government and the representative ministers, to evaluate the evolution of World Health from the Alma-Ata World Conference on Primary Health Care. In his statement, the General Director of the World Health Organization, Tedros Adhanom Ghebreyesus, said that *"Today, instead of Health for All, we have health for some"*, while proclaiming that *"We all have a solemn responsibility to ensure that today's Declaration on primary health care enables everyone, everywhere, to exercise their fundamental right to health."*

This perception by the General Director could be subscribed by all the professionals who work or have worked in PHC in any country over the years PHC has been developed, who have worked convinced that the goals proposed could be reached. But over time, they have been witnesses and partly protagonists of the deterioration of the health reform process where Primary Care should be the "gateway to the system" and receive the resources and political effort necessary for it to be so. Aware of that deterioration, they have struggled against the winds blowing at any given moment to avoid this as much as possible and to maintain their commitment to the community to which they provide care.(5)

Thus, what began as an important component of an illusionary discourse in the 1980s was diluted over the years to give way to a panorama that in no way resembled what was touted. Disillusionment and demotivation contributed to the routine of daily care activities and tasks occupying the gaps left by the abandonment of initiatives and strategies that during the initial years of the denominated reform had much relevance, at least rhetorical, like health promotion, team work, community participation or research, to name a few examples.(6)

The feeling of lethargy in relation to PHC is the most common perception among professionals who are still active; lethargy that is only saved sporadically by some proposals of rebellion against that established and of proposals suggesting that at the moment they just stay at that. Although the realities differ based on the contexts from the different countries, we believe some common causes to all of them can be established, at least in great part, which justify the reasons why today PHC is still being talked about as an objective to be achieved, when nearly 45 years have passed since Alma Ata.

For such, and based on that indicated by Pérez-Giménez, we identify several key processes:(7) (i) Mimicry of the biomedical, paternalistic, medicalized, and fragmented model of most Public Health Systems that impedes the development of the principal proposals of PHC regarding comprehensive participatory care, universalization, accessibility, equity; (ii) Lack of specific legislation that regulates the organization of PHC and its articulation with national health systems or the effective development of those existing in some countries; (iii) Lack of continuity in the changes begun after the Alma-Ata Declaration, which led to the philosophy of the PHC being talked about on many occasions, placing it on the plane of utopia or desire, but not of the real concretion; (iv) Idealization of Team Work that collides with the struggle of interests from the different professional collectives when interpreting that there is invasion of competences by some professionals, as is the case of nurses and the leadership role they acquire in many settings of PHC; (v) Suspicion of active and direct participation by the community in decision making, which is interpreted by some health professionals as an interference from the paternalistic and autocratic perspective imposed by themselves; and: (vi) Increase in liberalizing measures, whose symbol is the empowerment of new forms of management that do not identify PHC as a business model, leading to poor or meager funding that makes it unfeasible in relation to the objectives set forth in the Declaration and to a progressive reduction of the substantivity of the right to health caused:

This last key process is represented by:

- Distribution and adaptation of resources with clear criteria of inefficiency.
- Important costs increase and budget cuts for primary care. Considerable increase in demand without an adequate response to it.
- Significant increase in medicalization, without improvement in the population's perception of health; progressive incorporation of technology with displacement of promotion and prevention activities.
- Constant and fleeting experiences that fail to respond to the growing needs raised by the community and generate mistrust, demotivation, and rejection in professionals.
- Abandonment of basic PHC principles, such as community participation and intervention; greater lack of coordination between levels of

care with the consequential decrease in the continuity of care.

- Bureaucratization of care that makes it more distant and impersonal.
- Underuse of the resolution capacity of professionals, such as nurses or social workers, increasingly dedicated to care and administrative tasks.
- Ineffective organizational models in which the needs of the system or of certain health groups prevail over those of the community.
- Invisibility of care when not institutionally incorporated as a nursing product of its own in PHC.
- Implementation of information technology systems with purely administrative objectives.
- Lack of adequate and continuous formation, as well as specialization by nurses.
- Little or no collaboration with scientific societies.
- Ineffective or non-existent planning of medical and nursing consultations, aimed at responding to the growing demand without criteria of quality, effectiveness, and efficiency.
- Increased pharmaceutical spending and, paradoxically, in therapeutic abandonment.
- Scarce attention to vulnerable groups in the community, such as the frail elderly, the terminally ill, the mentally ill, the chronically ill, etc.
- Increase in individualistic care to the detriment of family and community intervention.
- Little or no team work.
- Organization on the basis of activities and tasks that reduce the autonomous action capacity of professionals.
- Progressive isolation of the health center and its professionals from the community.
- Scarce programmed activity.
- Diminished home care.
- Stagnation or decline in research, derived from the lack of support and general lack of motivation.
- Activity indicators that provide very timely information and with scarce relevance for management.

PHC and nursing leadership

To face the changes taking place to meet the new demands of the population and to achieve a PHC of the future, the most basic and conceptual aspects of the model continue being appropriate. Particularly, it is appropriate to recognize and enhance in the model the now classic defining attributes of PHC: accessibility (being close to the homes of the people and accessible 24 hours of the day, every day of the year), globality (attending to the different aspects of people's lives), longitudinality (doing so throughout the life cycle of individuals), and integrality (the professional's ability to provide comprehensive, integrated and integrative care to individuals, families and the community in the physical, mental, social and spiritual spheres) and bearing in mind the personal, family, social, and community resources available for its adequate and effective articulation and coordination).(8)

In spite of the validity of these fundamental elements of the model, the orientation of primary care will have to provide satisfactory answers to the new needs for adaptation and improvement of services like those that, for example, are proposed after the pandemic that has left behind a clear context of care that must necessarily be taken care of and led. Special emphasis should be placed on those aspects of the model that are insufficiently developed (for example, community care, as was also evident during the pandemic) and on those other aspects that, from an innovative perspective, to meet the new requirements of quality, equity and efficiency in providing services and satisfying citizens in this respect.(9)

Changes to improve PHC

Changes that seem reasonable to improve primary care coincide practically with those indicated by Vuori (10) when the PHC reform began as consequence of the Alma-Ata Declaration and which will be explained ahead:

Conceptual

Primary Health Care must focus, progressively, more on the citizens, their health problems, and the processes it must address than on the structures where care is provided. It does not seem logical to continue building infrastructures and that the actions carried out therein fall within the scope of the medical care that led to the primary care reform. That is, exclusively focused on care of individualized demand, disease, and pharmacological treatment. This leads to a vision of the organization that is completely different from the current stratified pyramidal type.

The improved PHC's resolving power must be identified as an instrument to achieve the most effective and efficient way of positively influencing the individual, family, and community health situation (health indicators) and, through such, the quality, life expectancy, and level of overall satisfaction of the people. It is necessary to identify as objective the improved health level and, through it, the quality of life, both from a population and individual perspective. This implies developing intersectoral strategies in which public health systems and other community resources are involved, reaffirming and strengthening community participation and intervention.(11) It is essential to incorporate the contributions to community health made by different staff professionals. The tendency to forget or underestimate the fundamental influence that these inputs have on the final decision-making power must be eliminated. Another centrally important element is that of assessing the quality and relevance of care actions with a level of priority equal to or higher than that given to their quantity.

Funding

It is necessary to design new forms of financing in the medium and long term to have a forward-looking vision that will allow us to provide an adequate response to the needs and demands of our clients. Resources should be allocated in a way that does not depend on keeping the structures to which the systems are often subjected. Structures cannot be justified on their own, rather, on the basis of the service they provide.

The payment systems of the different levels of care must be standardized to monitor the final destination of resources and the results obtained in the provision of services. The traditional strength and capacity of influence of the hospital sector within the productive structure of the offer of health services leads to its primacy with respect to the distribution of resources, with the consequent detriment to PHC. A more active policy that would permit the redistribution of resources would lead to a fairer and more balanced internal distribution of the budget that would allow to adequately strengthen PHC as a level of care that makes an important contribution to the systems as a whole. The constraints of a hospital level that acts as a lobby and hinders the necessary changes in the functional distribution of the budget must be limited as soon as possible. Restrictive conditions of the political and economic situations of many countries limit the PHC progress, but should not be a permanent excuse for its present and future paralysis.

General organizational

Health legislation must be adapted to the evolution of health care models to achieve the necessary organizational changes and unblock paralysis situations caused by the lack of regulatory coverage or even by the opposition of existing health legislation. Primary Health Care cannot be oblivious to the important socio-demographic, economic, political and family changes and to the demands that derive from them. The organization is centered fundamentally on responding to acute problems and to technological progress, while the emerging needs are increasingly focused on the problems associated with chronicity, dependency, social determinants or the Sustainable Development Goals.

To effectively address this reality, cross-sectoral strategies are essential. Community-based health care should promote attitudinal changes and education and training activities, as well as to be applied in all social and health care activities to make them accessible, comprehensive, integrated, inclusive, responsive to people's needs and cost-effective. It is a reality that there are two well-defined subsystems (technological, sporadic care, focused on the disease, which takes place in hospitals, and continuous and continued personal, family, and community care, centered on the primary care/social-health care conglomerate), which increasingly evidence the need to generate links that coordinate and integrate them through their priority inclusion in service contracts (symmetrically and complementarily in both primary care and hospital care contracts).

It is necessary to transform the coordination strategies between professionals and levels for others of vertical and horizontal integration of care by implementing specific strategies and evaluating their degree of compliance in practice to avoid, as has been happening, their remaining as mere declarations of good intentions.

Management and offer of services

Optimization of equity, effectiveness, and quality of resource distribution and health actions must be the consequence of balanced health resource management. Supply of care must achieve equity and distributive justice, providing more to those who need it most and have the least possibilities of solving their own problems. Therefore, the supply of (public) health services must always prioritize vulnerable population groups, offering basic public health services complemented by a broad offer that meets the needs of the most disadvantaged, without falling into charity services that increase the differences between health care provided to the rich (private) and the poor (public). The provision of aspects of the PHC service portfolio underdeveloped in the care offered by the staff (group care activities, pediatric home care, school health, home care, among others) should be included and strengthened.

Rapid aging of the population poses a huge challenge to PHC providers, and the demand for said services may be increased as the number of elderly adults increases in the population. The global disease profile is changing. A clear transition exists from infectious diseases to noncommunicable and chronic diseases, most of which can be prevented or delayed through health promotion and disease prevention strategies. Constant monitoring of chronic diseases is required to minimize the occurrence of associated disabilities and their adverse effects on quality of life, along with a strong PHC that can respond to emergency situations, such as COVID-19 or other possible pandemics in coordination with Public Health Services from a global perspective.(12)

Lack of qualitative methodologies and insufficient impact of PHC evaluation results contradict, on the one hand, the general conviction about the importance of service evaluation and, on the other hand, the lack of a clear and comprehensive evaluation methodology, and moreover, with the fact of having opted for a more-flexible model from the normative point of view, regarding the reference to the structure and care process, and in that the control of services centers theoretically on obtaining certain health results and citizen satisfaction.

Local organizational aspects (of daily work)

Allocation of resources based on population criteria and adjusted to real needs, fundamentally care needs, must contribute to rationalizing the staffing of PHC professionals with a significant increase in the number of general-care community nurses and the progressive incorporation of nurses specialized in family and community nursing who are in the best conditions and capacity to lead these care processes, especially after the pandemic (secondary effects to persistent COVID or as a consequence of the lack of attention during the pandemic to certain problems, like chronicity, palliative care, family caregivers, gender violence, mental health, as examples).(13)

Despite significant organizational changes produced in PHC, more as a mimetic response in its beginnings to the novelty derived from the Alma-Ata Declaration than to a real identification and will for it, these not only have not evolved to adapt to the needs of the community, but rather there has been a regression towards organizational approaches prior to the aforementioned changes. Another noteworthy fact is the poor distribution of skills in care actions that persists among the groups of professionals and that does not follow criteria to optimize effectiveness and efficiency. It is essential to perform a serious reflection and in-depth analysis on this issue that allows reorienting the priority fields of professional action, with special reference to community nurses and family doctors, with emphasis on the essential transdisciplinary work capable of overcoming problems derived from competence barriers by identifying common care objectives above the corporate and corporatist objectives of the different disciplines.

Teaching activities of the staff professionals must be extended to undergraduate and graduate studies in all the professional categories of the staff and facilitate accreditation of services for the teaching exercise. It is necessary to recognize in the contracts with provider entities and during the working hours of care professionals the time slots allocated to teaching and research activities and, particularly, promote support and labor recognition of the tutorial action of care professionals.

Professional

Professionals must keep in mind the needs, expectations, and demands of citizens to provide effective and efficient responses removed from the individualistic perspective that as collectives they often set as priority and which provoke not only the exclusion of that perspective, but also the inefficiency of the system as a whole. Priority should be assigned to those aspects of the care offer most directly related with caring for people, especially with respect to their expectations, level of demand regarding health services, and development of the relation of trust between the PHC professional and the individual (time accessibility, treatment personalization, confidentiality, dedication time, quick response, humanization, active listening, etc.).

The PHC professionals must come together in a true culture of transdisciplinary teams that reduces ineffectiveness and inefficiency in care processes derived from their absence. Nurses must be incorporated as true protagonists in improving the resolution power of PHC, specifically in home and community care actions. Likewise, it is necessary to tend to give prominence to professionals through the promotion of decision-making capacity, enhancing their motivation and real initiative capacity. Professionals must include the scientific evidence available in their management and professional-practice decisions, which favors abandoning the defensive practice often generated by mistrust between managers and professionals.

Users

Citizens must be well informed and acquire a responsible culture of resource use that allows them, in turn, to demand prompt and quality care, so that they can influence the resolution power of the PHC. It is essential to promote and strengthen the positive image of PHC, moving it away from the conception, still present in many politicians, managers, professionals and citizens, that it is a minor or second-class service compared with the resolution preponderance of technology and scientific prestige of hospitals. Confidence in PHC will favor its decision-making power, avoiding unsatisfied demand, dependency, deviation of care demands, and imbalance of budget allocations.

Participation

The perspective of improving PHC must not be limited to the clinical resolutive power. Community and non-medical resource settings must be purposefully and firmly incorporated, given that these elements also define a significant part of the quality of care. Community, citizenship, and organization participation in all the phases of the planning, management, and evaluation processes must be constituted as a key element in the future perspective of PHC, through effective mechanisms. This participation must avoid rigid and bureaucratic positions to achieve the necessary and desirable flexibility and adaptation to the characteristics of each environment.(14)

Future perspective of primary care

In spite of the deficiencies and deterioration of PHC, the necessary changes have not taken place to reverse the situation, which has been clearly evidenced during the COVID-19 pandemic.(15) Said deterioration has become more profound as a consequence of the austerity policies rightfully carried out or justified by crises and by demographic, social, family structure, and epidemiological changes, among others. The debate on the need to adapt the current PHC model that responds to the needs of the population is undergoing a paradigm shift in which individuals, families and the community are the true protagonists and health professionals from other areas and community health agents participate in coordinated and planned manner in addressing health problems, needs, experiences, and expectations of the people according with their bio-psychosocial and spiritual context, going beyond the disease and focusing on health through a salutogenic approach based on health assets and having health promotion as a transversal axis and with intersectoral approaches and transdisciplinary work.

To achieve this, nurses are needed. Not because it is nurses who will respond exclusively to the needs that arise from the PHC, but because nurses are in the best position and have the knowledge and skills to effectively and efficiently address this challenge. Nurses are not only used to join health institutions. It is necessary to identify the importance of incorporating nurses who will lead this process and who manage to coordinate resources and structure actions from the participatory work of all health agents, whether professionals or not, whether they are part of health or not. What is needed is professional nursing care. Permanent and fluid communication among the different community resources (both public and private) may also be necessary, and especially with universities to design, adapt, and implement specific skills in future nurses that allow them to be trained to deliver the best responses to situations, such as the one we are dealing with. The care that must be provided to future prospects must also be contemplated, promoted and prevented.

Care, on the other hand, is not exclusive to nurses, only professional nursing care is. But, undoubtedly, those who know best how to identify, assess, and manage care are nurses in general and community nurses in particular.

It is important to lay the foundations that allow contextualizing the scenario in which you want or seek to intervene to, from there, start agreeing on actions; in the same way that it is essential for nurses to lead many of these processes.

To conclude and as a summary, I present what I consider are the key words/ideas of the reformulation of PHC:
Care context, comprehensive care, integrated and integrating, health assets, healthy environments, community resources, inter-sectoriality, trans-disciplinarity, respect, generosity, gratitude, vulnerability, health literacy, community participation, and of course – NURSES.

References

1. Organización Mundial de la Salud. Declaración de Alma-Ata, en Atención Primaria de Salud, informe de la Conferencia Internacional sobre Atención Primaria de Salud, Alma Ata, URSS [Internet]. Ginebra: OMS; 1978 (cited 13 Sept. 2022). Available from: https://www.paho.org/hq/dmdocuments/2012/Alma-Ata-1978Declaracion.pdf
2. Entrevista con Josep Ramoneda. El País. 27 June 2010. p.18.
3. Organización Mundial de la Salud. 51ª Asamblea Mundial de Salud. Ginebra: OMS; 1998 (cited 13 Sep 2022). Available from: https://apps.who.int/iris/bitstream/handle/10665/258904/WHA51-1998-REC-3-spa.pdf?sequence=1
4. World Health Organization. Astana Declaration [Internet]. 2018 [cited 12 Sept. 2022]. Available from: https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration-sp.pdf
5. Pérez Mora MJ, Martínez-Riera JR. Declaración de Alma Ata. In: Martínez-Riera JR, Del Pino Casado R, Editors. In: Manual Práctico de Enfermería Comunitaria. Barcelona: ELSEVIER; 2020.
6. Martínez-Riera JR. Participación comunitaria en salud. Manual práctico de enfermería comunitaria. 2nd Ed. España: Elsevier España; 2020. pp. 522-6.
7. Pérez-Giménez R. Políticas sanitarias y desigualdades en España. In: Adelantado J, coordinador. Cambios en el Estado de Bienestar. Políticas sociales y desigualdades en España. Barcelona: Icaria y Universidad Autónoma de Barcelona; 2000. p. 251-84.
8. Martínez-Riera JR, Martínez-Riera JR, Rubio C. La dirección del programa: liderazgo en la puesta en práctica. Gestión de Planes y Programas. España: Grupo Magro Editores; 2017. pp. 71-88.
9. Martínez-Riera, JR. Enfermeras. Una voz para liderar. Liderando con voz propia. Rev. ROL Enferm. 2019; 41(6):417-21.
10. Vuori H. ¿Qué es la atención primaria de salud? Aten. Primaria. 1984; 1:3-4.
11. Martínez Riera, JR. Sanjuán Quiles, A. Intersectorialidad y transversalidad de la atención de salud (CL). En: Martín-Zurro, A. Jodar Solà, G. Atención Familiar y Salud Comunitaria. Conceptos y materiales para docentes y estudiantes. Edit. Elsevier-España, SA. 2ª Edición Barcelona 2018; 61-79.
12. Martínez-Riera JR, García-Iglesias JJ, Gómez-Salgado J, MartínPereira J, Fagundo-Rivera J, Ayuso-Murillo D, et al. Impacto del SARS-CoV-2 (Covid-19) en la salud mental de los profesionales sanitarios: una revisión sistemática. Rev. Esp. Salud Publica. 2020; 94(1): e1-e20.
13. Martínez-Riera JR. COVID-19 y las enfermeras. Rev. ROL Enferm. 2020; 43(4):246-7.
14. Sáinz-Ruiz PA, Mínguez-Arias J, Martínez-Riera JR. Los consejos de salud como instrumento de participación comunitaria en La Rioja. Gac. Sanit. 2019 ;33(2):134–40.
15. Martínez-Riera JR, Gras Nieto E. Atención domiciliaria y COVID-19. Antes, durante y grado después del estado de alarma. Enferm. Clín. 2021; 31(1 extra):24-8.

Original article

UNIVERSIDAD
DE ANTIOQUIA
1803

Openreuma Consensus on the role of nursing in the care of patients with rheumatoid arthritis and diffuse interstitial lung disease

Laura Cano García[1]
María Jesús García de Yébenes[2]
https://orcid.org/0000-0003-0358-6070
Natalia Mena Vázquez[1]
https://orcid.org/0000-0001-6173-2051
José Mª Martín Martín[3]
Carmen Domínguez Quesada[4]
Silvia García-Díaz[5]
Ana Isabel Rodríguez Vargas[6]
Jenny de la Torre-Aboki[7]
https://orcid.org/0000-0002-4905-2034
Francisco Jiménez Núñez[1]
Francisco Espíldora Hernández[1]
https://orcid.org/0000-0003-1669-1873
Leticia León Mateos[8]
https://orcid.org/0000-0001-7142-0545
Ana Vázquez Lojo[9]
Elena Marcos Pérez[10]
Laura Castiblanco[11]
https://orcid.org/0000-0002-5863-7755
Loreto Carmona[2,12]
https://orcid.org/0000-0002-4401-2551

1 Regional University Hospital of Malaga; Malaga, Spain.
2 Instituto de Salud Musculoesquelética (Inmusc); Madrid, Spain.
3 University Hospital Nuestra Señora de la Candelaria; Santa Cruz de Tenerife, Spain.
4 Virgen Macarena University Hospital; Seville, Spain.
5 Consorci Sanitari Integral, L'Hospitalet de Llobregat; Barcelona, Spain.
6 University Hospital of the Canary Islands; Santa Cruz de Tenerife, Spain.
7 Alicante General University Hospital; Alicante, Spain.
8 Hospital Clínico San Carlos; Madrid, Spain.
9 Spanish League Against Rheumatism (LIRE); Spain.
10 Moisès Broggi Hospital. San Juan Despí; Barcelona, Spain.
11 OpenReuma; Spain.
12 Corresponding author: loreto.carmona@inmusc.eu

Received: June 19, 2022.
Approved: October 3, 2022.

Conflicts of interest. LC and MJGY have received no honoraria or personal support from any laboratory, but their institute works under contract for laboratories including Abbvie, Gebro Pharma, MSD, Novartis, Pfizer, Roche, Sanofi Aventis, Grünenthal and UCB. All other authors did not declare any conflicts of interest.

How to cite this article: Cano L, García MJ, Mena N, Martín JM, Domínguez C, García-Díaz S, et al. Openreuma consensus on the role of nursing in the care of patients with rheumatoid arthritis and diffuse interstitial lung disease. Invest. Educ. Enferm. 2023; 41(1):e17.

DOI: https://doi.org/10.17533/udea.iee.v41n1e17.

Openreuma consensus on the role of nursing in the care of patients with rheumatoid arthritis and diffuse interstitial lung disease

Abstract

Objective. To develop practical recommendations, based on the best available evidence and experience, on the nursing management of patients with rheumatoid arthritis (RA) and interstitial lung disease (ILD). **Methods.** The usual consensus methodology was used, with a nominal group, systematic reviews (SRs), and Delphi survey. The expert panel, consisting of rheumatology nurses, rheumatologists, a psychologist, a physiotherapist, and a patient, defined the scope, the users, the topics on which to explore the evidence and on which to issue recommendations. **Results.** Three PICO questions evaluated the efficacy and safety of pulmonary rehabilitation and non-pharmacological measures for the treatment of chronic cough and gastroesophageal reflux by means of SR of the literature. With the results of the reviews, 15 recommendations were established for which the degree of agreement was obtained with a Delphi survey. Three recommendations were rejected in the second round. The 12 recommendations were in patient assessment (*n*=4); patient education (*n*=4); and risk management (*n*=4). Only one recommendation was based on available evidence, while the remaining were based on expert opinion. The degree of agreement ranged from 77% to 100%. **Conclusion.** This document presents a series of recommendations with the aim of improving the prognosis and quality of life of patients with RA-ILD. Nursing knowledge and implementation of these recommendations can improve the follow-up and prognosis of patients with RA who present with ILD.

Descriptors: lung diseases, interstitial; arthritis, rheumatoid; consensus; nursing; safety; efficacy.

Consenso de *Openreuma* sobre el papel de la enfermería en el cuidado de pacientes con artritis reumatoide y enfermedad pulmonar intersticial difusa

Resumen

Objetivo. Desarrollar recomendaciones prácticas, basadas en la mejor evidencia y experiencia disponible, sobre el manejo de enfermería de los pacientes con artritis reumatoide (AR) y enfermedad pulmonar intersticial (EPI). **Métodos.** Se utilizó la metodología de consenso en la que un panel de expertos (formado por enfermeras de reumatología, reumatólogos, una psicóloga, una fisioterapeuta y una paciente) definió el ámbito, los usuarios, los temas sobre los que explorar la evidencia y sobre los que emitir recomendaciones. Tres preguntas PICO evaluaron la eficacia y seguridad de la rehabilitación pulmonar y las medidas no farmacológicas para el tratamiento de la tos crónica y el reflujo gastroesofágico mediante la búsqueda de revisiones sistemáticas, excluyendo aquellas cuya calidad era baja, muy baja o críticamente baja, según la herramienta AMSTAR-2. Posteriormente, se hizo una reunión para la formulación de recomendaciones que se presentaron con un resumen de la evidencia a la encuesta Delphi. **Resultados.** Con los resultados de las revisiones se establecieron 15 recomendaciones cuyo grado de acuerdo osciló entre el 77% y el 100% en la una encuesta Delphi. Tres recomendaciones fueron rechazadas en la segunda ronda: una por la evidencia disponible y los dos restantes se basaron en la opinión de expertos. Las 12 recomendaciones restantes aprobadas se referían a la evaluación del paciente (*n*=4), a la educación del paciente (*n*=4) y a la gestión del riesgo (*n*=4). **Conclusión.** El conocimiento del consenso *Openreuma* por parte de enfermería y la aplicación sus 12 recomendaciones basadas en la mejor evidencia y experiencia puede mejorar el seguimiento y el pronóstico de los pacientes con AR que presentan EPI.

Descriptores: enfermedades pulmonares intersticiales; artritis reumatoide; consenso; enfermería; seguridad; eficacia.

Consenso *Openreuma* sobre o papel da enfermagem no cuidado de pacientes com artrite reumatoide e doença pulmonar intersticial difusa

Resumo

Objetivo. Desenvolver recomendações práticas, baseadas na melhor evidência e experiência disponíveis, sobre o manejo de enfermagem de pacientes com artrite reumatoide (AR) e doença pulmonar intersticial (DPI). **Métodos.** Foi utilizada a metodologia de consenso, com grupo nominal, revisões sistemáticas e levantamento Delphi. O painel de especialistas, formado por enfermeiros reumatologistas, reumatologistas, psicólogo, fisioterapeuta e paciente, definiu o escopo, os usuários, os tópicos sobre os quais explorar as evidências e sobre os quais emitir recomendações. Três questões do PICO avaliaram a eficácia e segurança da reabilitação pulmonar e medidas não farmacológicas para o tratamento da tosse crônica e refluxo gastroesofágico por meio de RS. Aqueles cuja qualidade era baixa, muito baixa ou criticamente baixa, de acordo com a ferramenta AMSTAR-2, foram excluídos. Posteriormente, realizou-se uma reunião para formular recomendações que foram apresentadas com um resumo das evidências ao inquérito Delphi. **Resultados.** Com os resultados das revisões, foram estabelecidas 15 recomendações cujo grau de concordância entre 77% e 100% foi obtido com uma pesquisa Delphi. Três recomendações foram rejeitadas na segunda rodada. As 12 recomendações referiam-se à avaliação do paciente (*n*=4); à educação do paciente (*n*=4); e ao gerenciamento de risco (*n*=4). Apenas uma recomendação foi baseada nas evidências disponíveis, enquanto as demais foram baseadas na opinião de especialistas. **Conclusão.** Este documento apresenta uma série de recomendações com o objetivo de melhorar o prognóstico e a qualidade de vida dos pacientes com AR-ILD. O conhecimento da enfermagem e a aplicação dessas recomendações podem melhorar o acompanhamento e o prognóstico de pacientes com AR com DPI.

Descritores: doenças pulmonares intersticiais; artrite reumatoid; consenso; enfermagem; segurança; eficacia.

Introduction

The term "diffuse interstitial lung disease" (ILD) encompasses a heterogeneous group of diseases with common clinical, radiological, and histological features that may occur in association with autoimmune processes, such as rheumatoid arthritis (RA), or without known cause. Although a recently published prevalence of ILD in RA of around 5% has been reported, the prevalence, as well as the clinical and histological characteristics of these diseases show large variability.(1) Differences are due to, among other reasons, its often-subclinical nature, the different populations studied, and the diagnostic methods used. Risk factors for the development of ILD in RA include older age, male sex, smoking, and seropositivity for rheumatoid factor and anti-cyclic citrullinated peptide antibodies.(2) The predominant symptoms of ILD are exertional dyspnoea and chronic dry cough. In addition, up to 50% of patients also have gastro-oesophageal reflux disease (GORD).(3) ILD is one of the main causes of morbidity and mortality in RA, with an estimated median survival of 3-7 years, comparable to some neoplastic diseases.(1,3) Dyspnoea and cough cause significant functional impairment which, together with poor prognosis, favours the onset of depressive symptoms and loss of quality of life.(4,5)

The recommendations of the Spanish Society of Rheumatology (SER) and the Spanish Society of Pneumology and Thoracic Surgery (SEPAR) establish the need for multidisciplinary therapeutic management in patients with RA-associated ILD,(6) an aspect that has been repeatedly pointed out by several authors.(3,7) In fact, the *National Institute for Health and Care Excellence* (NICE) has underlined the importance of specialist nursing in the management of patients with idiopathic pulmonary fibrosis, a type of ILD, as have the European Alliance of Associations for Rheumatology (EULAR) recommendations for the management of patients with RA-associated ILD and also the 2018 EULAR recommendations on the role of nursing in the management of chronic inflammatory arthritis.(8,9) Responsibilities may include: patient and family education, assessment of symptoms (dyspnoea, fatigue, cough, and psychological distress) and comorbidities, coordination with other healthcare professionals, participation in research projects, addressing questions about severity, progression, diagnostic tests and pharmacological and non-pharmacological treatment options, and advice on support groups and other resources.(4,5,7)

Despite the importance of multidisciplinary treatment, the reality is that there are no practical guidelines on the specific aspects that nursing professionals face on a daily basis in the management and follow-up of patients with PIDD. Nurses assessing patients with RA-ILD are part of a healthcare team in close collaboration with the patient and family/significant others, the rheumatologist and pulmonologist, both ideally located in multidisciplinary units. Unfortunately, at present there is no speciality in rheumatology or pulmonology nursing. With these considerations in mind, OpenReuma has promoted the development of a document of recommendations, based on evidence or expert opinion, to help nurses improve the management and follow-up of patients with PIDD.

Methods

The usual methodological approach for evidence-based consensus was used, including nominal group, systematic review (SR), and Delphi survey. The study was conducted in the following successive phases: 1) nominal group with an expert panel and patient interview; 2) SRs; 3) consensus meeting for the development of recommendations; and 4) Delphi voting on the degree of agreement. By its nature, the project was exempt from the need for approval by a research ethics committee. However, it was guided in accordance with the principles set out in the Declaration of Helsinki, applicable Good Clinical Practice regulations and current legislation on confidentiality.

Nominal group and panel of experts

To address all aspects of interest, a multidisciplinary panel of 13 people - 7 rheumatology nurses, 2 rheumatologists, 1 pulmonologist, 1 psychologist, 1 physiotherapist and occupational therapist and 1 patient with ILD - was formed. In a first meeting of the panel, the guidelines of the document, the scope, the users, and the structure were defined. In addition, the points on which to explore the evidence were identified. The panel met twice and was kept informed throughout the development of the project via the Miro® platform.

Literature review

The clinical questions defined by the panel were transformed into the PICOt epidemiological format so that they could be answered by systematic literature review (Table 1). We evaluated the efficacy and safety of pulmonary rehabilitation and non-pharmacological interventions to improve two typical problems of ILD: refractory cough and GORD.

Table 1. PICOts used in the systematic reviews

Question	Population	Intervention	Comparator	Outcome	Type of study
Is pulmonary rehabilitation effective in ILD?	ILD	Pulmonary rehabilitation	Pharmacological, non-pharmacological treatments and ineffective or sham interventions	Effectiveness and safety	SRs and RCTs
What is the efficacy of non-pharmacological interventions for refractory cough?	Refractory chronic cough	Non-pharmacological interventions	Pharmacological, non-pharmacological treatments and ineffective or sham interventions	Effectiveness and safety	SRs and RCTs
What is the efficacy of non-pharmacological interventions in gastro-oesophageal reflux?	GORD	Non-pharmacological interventions	Non-pharmacological treatments and ineffective or sham interventions	Effectiveness and safety	SRs and RCTs

Abbreviations: ILD, interstitial lung disease; GORD, gastro-oesophageal reflux diseases; SRs, systematic reviews. RCTs=randomised clinical trials.

The reviews conducted were hierarchical, i.e., for each question, existing SR papers were first identified and assessed for bias. We only proceeded to search for primary studies in cases where the evidence was not sufficiently robust, direct, and consistent to answer the question posed. A search strategy was established for each question including terms related to ILD, pulmonary rehabilitation, refractory cough, or GORD, both MeSH and free text, filtered by study type "systematic review" (Table 2). Articles were peer-selected by title and abstract using Rayyan® software and then read in detail to check for eligibility.

Table 2. Search strategies

PICOt	Terms
ILD	Lung Diseases, Interstitial [MeSH Terms]. Pulmonary Fibrosis [MeSH Terms]. "Diffuse Parenchymal Lung Disease"[Text Word]. Interstitial [Text Word] AND lung [Text Word] AND disease* [Text Word]. Pneumon*[Text Word] AND Interstitial[Text Word]) (pulmonary*[Text Word] OR lung*[Text Word] OR alveoli*[Text Word]) AND (fibros*[Text Word] OR fibrot*[Text Word])
Pulmonary rehabilitation	(rehabilitat*[Text Word] OR fitness*[Text Word] OR exercis*[Text Word] OR physical*[Text Word] OR train*[Text Word] OR activ*[Text Word] OR physiotherap*[Text Word] OR kinesiotherap*[Text Word] OR exert*[Text Word] OR "Physical Therapy Modalities" [MeSH] OR "Exercise" [MeSH] OR "Physical Fitness" [MeSH] OR "Physical Exertion" [MeSH] OR "Rehabilitation" [MeSH])
GORD	"Gastroesophageal Reflux"[Mesh]. (gastric AND acid AND reflux) (gastro-esophageal OR gastro-oesophageal OR gastro-oesophageal OR gastroesophageal) AND (reflux disease) GERD
Cough	"Cough[Mesh]"[Mesh (chronic OR subacute OR SUB-ACUTE) AND cough refractory AND cough cough*.
SR	(systematic review[ti] OR systematic literature review[ti] OR systematic scoping review[ti] OR systematic narrative review[ti] OR systematic qualitative review[ti] OR systematic evidence review[ti] OR systematic quantitative review[ti] OR systematic meta-review[ti] OR systematic critical review[ti] OR systematic mixed studies review[ti] OR systematic mapping review[ti] OR systematic mapping review[ti] OR systematic cochrane review[ti] OR systematic search and review[ti] OR systematic integrative review[ti]) NOT comment [pt] NOT (protocol [ti] OR protocols [ti])) NOT MEDLINE [subset] Cochrane Database Syst Rev [ta] AND review [pt]) OR systematic review [pt]

Abbreviations: ILD, interstitial lung disease; GORD, gastro-oesophageal reflux diseases; SR, systematic review.

The methodological quality of the reviews selected was assessed using the AMSTAR-2 tool, excluding those whose quality was low, very low, or critically low.(10) If the evidence was not sufficiently solid, direct, and consistent to answer a specific question, a search for primary studies was carried out. The methodological assessment was performed using the Cochrane Rob 2 risk of bias tool and Jadad's scale for the risk of bias.(11,12) In order to facilitate informed decisions by the panel, tables including information from the selected studies were prepared using the GRADE methodology.(13) For this purpose, the most relevant results were selected and the level of evidence for each specific question was assigned. The GRADE system classifies the quality of evidence into four levels: high, moderate, low, and very low.

Meeting for the formulation of recommendations

Once the literature review was completed and based on the issues raised at the first meeting, the steering group produced a draft of the recommendations to work on. These recommendations, together with their evidence, were presented at a second meeting of the panel for discussion and consensus editing. For each of the proposed recommendations a first vote was taken during the meeting. In this first vote, only those recommendations were voted for or against. Consensus was only reached for those recommendations that achieved 65% in favour. Adjustments were then made to the wording to reflect all the panel's perspectives. In addition, recommendations not proposed by the steering group were added during the meeting, following the same methodology. All the panel's discussions were recorded in minutes that served as the basis for the final document.

Assessment of the degree of agreement: Delphi survey

The recommendations obtained at the consensus meeting were transformed into the items of a Delphi survey. This Delphi was answered by the panel members and sent to the OpenReuma members (rheumatologists and nurses), as potential users of the recommendations. In the Delphi (conducted with Welphi®), each item was presented with a summary of the evidence. The degree of agreement was scored on a scale from 0 (strongly disagree) to 10 (strongly agree). In a first round, corrections to the text were allowed. If a recommendation did not require corrections and reached more than 75% agreement, it was not passed to the second round.

Results

The results of the SRs are presented for each research question: 1) Efficacy of pulmonary rehabilitation in ILD. Twenty-four SRs were identified of which 4 were finally included for detailed reading; 2) Efficacy of non-pharmacological interventions for the treatment of refractory cough. This search was not narrowed down by ILD, and therefore included refractory cough of any cause. Twenty SRs were identified, of which two were finally included for detailed reading; and 3) Efficacy of non-pharmacological interventions for the treatment of GORD. This search was also not narrowed by ILD and therefore included reflux of any cause. Eight SR were identified, of which only one was selected for detailed reading, although it did not include patients with GORD. The flow chart of the three research questions is presented in Figure 1.

A total of 15 recommendations were formulated for which a summary of the evidence obtained is presented. Table 3 shows the complete list of recommendations with their level of evidence according to GRADE and the degree of agreement. Only one of the 12 recommendations was based on the SRs, while the rest are based on expert opinion, although they are easy to justify.

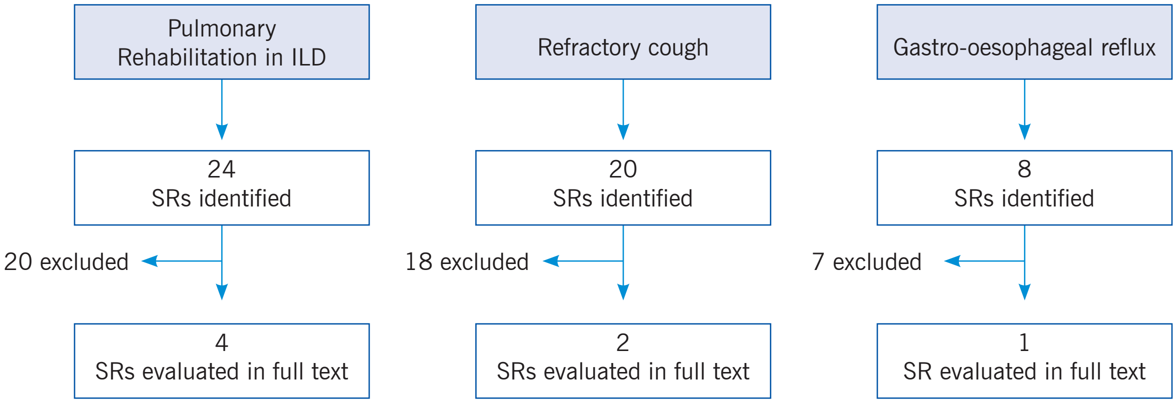


Figure 1. Flow chart of systematic reviews
Abbreviations: ILD, interstitial lung disease; SR, systematic review.

Table 3. Recommendations for the management of patients with RA-ILD by the rheumatology nurse

Number	Recommendation	Level of evidence[*]	Agreement[†]
1	Screening for comorbidities should be performed.	NA	81%
2	The nurse should assess and screen for signs and symptoms of ILD in patients with RA.	NA	86%
3	Adherence to treatment should be assessed on a regular basis.	NA	100%
4	The nurse should assist in regular monitoring of treatment safety.	NA	100%
5	The patient should be educated in the early detection of treatment-related adverse effects.	NA	100%
6	ILD-specific aspects should be included in the health education programme for patients with RA.	NA	95%
7	The patient should be counselled and supported in smoking cessation.	NA	100%
8	The rheumatology nurse should educate the patient on infection prevention and identification.	NA	90%
9	In case of reflux or orthopnoea, it may be recommended that the head of the bed be raised.	Very low	95%
10	It is recommended to complement the assessment of patients with ILD with specific PROMs.	NA	95%
11	If frailty is suspected, it should be confirmed by a validated instrument.	NA	86%
12	The nurse should identify available resources for referral of complicated psychosocial cases.	NA	77%

Abbreviations: ILD, interstitial lung disease; RA, rheumatoid arthritis; NA, not applicable; PROMs, patient-reported outcomes. * GRADE (Very High, High, Moderate, Low, Very Low). Not applicable (NA) when there is no systematic review, but it is based on expert consensus; † After the second Delphi round.

R1. Screening for comorbidities should be performed. Patients with RA should have access to a nurse with knowledge in rheumatic diseases and related diseases, among which ILD is a very relevant one. RA is a chronic inflammatory disease with significant associated comorbidity that has a major impact on patients' functional status, outcome, and quality of life.(14,15) Therefore, comorbidity management in these diseases is of particular importance. Consensus documents have been developed with specific recommendations for the assessment and management of comorbidity in RA,(16) although the pressure of care may be a limiting factor in following these recommendations. To facilitate the management of comorbidity in these patients, specific checklists can be used, both for healthcare professionals and for the patients themselves.(17) The role of nursing in comorbidity management has been emphasised by several authors,(16,18,19) as well as by the EULAR recommendations on the role of nursing in chronic inflammatory arthritis published in 2018.(9)

R2. The nurse should have the training to assess and screen for signs and symptoms of ILD in patients with RA. The SER-SEPAR recommendations on ILD state that patients with RA and respiratory symptoms or auscultation of velcro-like crackles should be systematically screened for ILD.(6) In addition, the EULAR recommendations for nurses stress that "some tasks, traditionally performed by rheumatologists and physiotherapists, such as joint examination, and assessment of signs and symptoms can be learned and performed by nurses with minimal training".(9) It would therefore be advisable to implement nursing training for the correct identification of signs and symptoms associated with ILD, e.g., perform pulmonary auscultation, and interpret the meaning of respiratory function tests. Assessment of dyspnoea by nurses is a simple task that is performed quickly and increases the confidence of the nurse by improving the efficiency of the patient-centred model. Nurses are aware of the importance of routinely measuring breathlessness and standardising this process.(20) It is recommended to use the modified Medical Research Council (mMRC) scale, a very simple scale consisting of 5 levels ranging from 0 (no dyspnoea) to 5 (disabling dyspnoea).(21)

R3. Adherence to treatment should be assessed on a regular basis. Patient education improves adherence to treatment.(9) Although there are no specific recommendations on the type of intervention to be applied to improve adherence, the EULAR recommendations on adherence to treatment state that all professionals involved in the management of patients with rheumatic and musculoskeletal diseases should promote adherence to treatment and use tailored strategies.(22) Similarly, they insist on the need to assess adherence on a regular basis, based on open-ended questions, especially when the disease is not well controlled. In these recommendations there are useful examples and checklists to adapt to the rheumatology nursing practice.

R4. The nurse must collaborate in the periodic monitoring of treatment safety. Nursing plays a key role in pharmacovigilance activities, improving patient safety and reducing treatment costs. The nurse is the healthcare professional who administers the medicines and usually follows the patient's progress first-hand and is therefore able to identify possible adverse reactions. However, the reporting of adverse reactions is exceptionally low.(23) The results of a SR have shown that, despite the positive attitude of nursing professionals towards pharmacovigilance activities, their level of knowledge and practice lacks adequate competence, with lack of training being the most important obstacle;(24) therefore, continued training of professionals to become competent in pharmacovigilance activities should be ensured, and qualitative studies aimed at discovering new ways to improve involvement in these processes should be promoted.

R5. The patient should be educated in the early detection of adverse effects resulting from treatment. The first EULAR recommendation on the role of nursing in chronic inflammatory arthritis states that patients should have access to a nurse for needs-based education to improve knowledge and management of their disease.(9)

R6. ILD-specific aspects should be included in the health education programme for patients with RA. Patient education should fulfil different activities aimed at aspects related to health promotion, abandonment of harmful habits, treatment, warning signs of complications, exercise, to foster patient independence and self-management of their disease. Educational activities are applicable at the individual level, e.g., through the use of PROMs (Patient-reported outcome measures), or at the group level and should also include family members. Educational activities should be coordinated between the pulmonology and rheumatology units.

R7. The patient should be counselled and supported in smoking cessation. Several studies have identified smoking as a risk factor for the development of ILD, although no direct relationship with mortality has been observed.(2,25-28) Smoking cessation counselling is of paramount importance in these patients.(3) In this regard, it is important to highlight the usefulness of the smoking cessation units that exist in the various Spanish autonomous communities. These units are linked to hospitals and primary care teams and their coverage varies from one region of Spain to another. On the other hand, the guidance and monitoring of patients by nurses with specific training can be useful, although the evidence on the effectiveness of behavioural support, provided by nurses, to motivate and maintain abstinence from smoking is moderate.(29)

R8. The rheumatology nurse must educate the patient on infection prevention and identification. Patients with ILD are at increased risk of infection due to a combination of factors, such as the lung disease itself, immunosuppressive treatment, and immune system alterations,(2,4) and is a major cause of mortality.(1) It is therefore essential to maintain vigilance for warning signs or suspected infection and to encourage routine vaccination against influenza and pneumococcus, as established in the SER-SEPAR recommendations. (6) Preventive measures against infection are essential in patients' protection. The nurse can reuse information on the internet, such as that available on MedlinePlus (https://medlineplus.gov/spanish/infectiousdiseases.html) or the American CDC (https://www.cdc.gov/ncbddd/spanish/sicklecell/healthyliving-prevent-infection.html), or request brochures from the hospital's Preventive Medicine Service to have available for consultation. Vaccination is usually performed at primary care following recommendations made by pulmonologists or rheumatologists.

R9. In case of reflux or orthopnoea, it may be recommended that the head of the bed be elevated. The existence of a link between GORD and various lung diseases underlines the importance of using measures that can reduce reflux with its possible effect on dyspnoea and the occurrence of exacerbations.(30,31) A SR was found on the effect of head-of-bed elevation in patients with GORD, although it did not specifically include patients with ILD or RA. The results of this article showed that elevating the head of the bed, or sleeping with a wedge under a pillow, improves GORD symptoms, with a very limited impact on the reduction of reflux episodes. However, this review has an elevated risk of bias and high heterogeneity, thus a very low level of evidence.(32)

R10. It is recommended to complement the assessment of patients with ILD by specific PROMs. PROMs are objective measures of the patient's perception of different aspects of the disease. Since the impact of ILD on the patient's life is so important, the use of PROMs is essential to obtain a true approximation of the impact of the disease and its treatments from the patient's perspective. In addition, they are especially useful to improve physician and patient satisfaction, efficiency, communication, as well as decision making. In ILD, PROMs can be used primarily to assess symptoms (dyspnoea, cough, fatigue), quality of life, and impact of treatment. Symptom assessment, such as dyspnoea, can be done with the modified Medical Research Council (mMRC) scale, as previously discussed.(21) With regard to quality of life, validated questionnaires for patients with ILD, such as the Saint George Respiratory Questionnaire (SGRQ-I),(33) or the King's Brief Interstitial Lung Disease Questionnaire (K-BILD) can be used.(34) Finally, the psychological impact can be measured using the Hospital Anxiety and Depression Scale (HADS), or the Beck Depression Inventory (BDI).(35) A review on the use of PROMs in ILD, published in 2021, affirms the need to use instruments specifically designed for ILD and properly validated, and also sets out a series of recommendations for their use.(36)

R11. If frailty is suspected, it should be confirmed by a validated instrument. Frailty is defined as a physiological state of increased vulnerability to stressors due to decreased physiological reserves. Cohort studies have shown that about half of all patients with ILD have frailty and its importance lies in its predictive role in disability, hospitalisation, and mortality.(37,38) Two models of frailty have been described; Fried's model based on biomedical factors,(39) and the Rockwood's model based with a more holistic definition including psychosocial and environmental factors.(40) Assessment of frailty is important for the possibility of intervention. However, although multiple instruments exist, not all of them are validated. Fried's model is the most widely accepted and defines frailty by the presence of at least 3 of the following criteria: unintentional weight loss of 4.5 kg in the last year, subjective feeling of exhaustion (feeling unusually tired in the last month), weakness with objective lack of strength, decreased walking speed and low physical activity. The consensus document on frailty and falls prevention in the elderly, of the Ministry of Health and Social Affairs of 2014 proposes the SHARE-FI scale,(41) validated in the Spanish population, based on the Fried criteria and applicable to non-institutionalised patients.(42) There are free access calculators for this scale, differentiated by sex, at https://sites.google.com/a/tcd.ie/share-frailty-instrument-calculators/. On the other hand, a scale has been developed in Spain to measure the biological characteristics of frailty, The Frailty Trait Scale (FTS), based on Fried's model, although it also incorporates the framework proposed by Rockwood. It consists of 12 items grouped into 7 dimensions: energy balance-nutrition, physical activity, nervous system, vascular system, strength, endurance, and walking speed. This scale has predictive value for mortality in people over 80 years of age, and for hospitalisations in people under 80.(43)

R12. The nurse must identify available resources for referral of complicated psychosocial cases. Appropriate management of psychosocial problems improves health outcomes and quality of life for patients. The nurse is one of the closest professionals to the patient, and therefore plays a fundamental role in the detection and referral of those with psychosocial problems.

Discussion

This paper presents a series of recommendations, based on the best available evidence and the opinion of a multidisciplinary group of experts, to assist nursing professionals in the management and follow-up of patients with RA-ILD. In general, existing guidelines or recommendations, such as those of SER-SEPAR, are purely clinical and do not include specific information for nurses. On the other hand, the high complexity of patients with RA-ILD requires adapting the available evidence to the context of the rheumatology nurse by developing specific recommendations to improve patient management in complex situations in which the nurse can play a role. With these considerations, twelve recommendations for the management of patients with RA-ILD by the rheumatology nurse have been established. Four recommendations are about assessment (identification), four about education (prevention), and four about of risk management (detection). Only one of the recommendations was based on available evidence, with a very low level of evidence; the rest were based on expert opinion, so the level of evidence does not apply. The degree of agreement of the recommendations ranged from 77% to 100%.

The assessment of possible lung involvement in RA patients is very important, as the occurrence of ILD carries a worse prognosis and should be done in a multidisciplinary way (integrated clinical diagnostic model).(6) This is the setting for recommendations R1 (screening for comorbidities), R2 (assess and screen for signs and symptoms of ILD in patients with RA), R10 (use of specific PROMS), and R11 (assessment of frailty). Patient education is a key tool to promote self-management, self-efficacy, and appropriate coping with the disease in order to facilitate independence,(44) and a major role of nursing. This aspect is reflected in recommendations R5 (education to detect adverse events), R6 (education on specific aspects of ILD), R7 (importance of smoking cessation), and R8 (need to identify and prevent infections).

Risk management represents the set of pharmacovigilance activities and interventions designed to identify, characterise, and prevent or minimise the risks of medicines and to evaluate the effectiveness of these interventions. Risk management can occur at different points during treatment: before treatment initiation, during follow-up, and in the assessment of potential undesirable effects that may occur.(45) Two recommendations address this aspect, R3 (referring to the need to regularly assess adherence to treatment), and R4 (on the collaboration of the nurse in the periodic monitoring of treatment safety). Recommendation R9, referring to the efficacy of the bedside in case of reflux, refers to the effectiveness of an intervention to reduce risk of complications and was the only evidence-based recommendation, although with a very low level according to GRADE. Recommendation R12, referring to the identification and referral of patients with psychosocial problems, belongs to the context of risk management in special situations.

The following three recommendations were rejected in the second round of the Delphi:

- "The nurse must have a basic knowledge of oxygen therapy and CPAP in order to be able to answer the patient's questions".
- "Patient access to respiratory rehabilitation units should be facilitated"; this recommendation had 71% agreement and was evidence-based, although with a very low level of evidence.
- "In case of refractory cough, in addition to pharmacological measures, speech rehabilitation may be considered"; the level of agreement for this recommendation was very low, 59%, although it was evidence-based, with a very low level of evidence.

Unfortunately, the Delphi panel was very clear in excluding these recommendations. We cannot but reflect what happened, given that the methodology was established a priori and approved by all. Among the limitations of this work, it should be noted that all but one of the recommendations were based on expert opinion due to the lack of specific studies. In addition, it is important to note that the recommendations rejected in the second round were evidence-based, although their level of evidence was very low. One explanation for the lack of studies on the topics of the recommendations may have to do with the majority of resources being allocated to projects related to the therapeutic efficacy of specific drugs. On the other hand, the rejection of the three aforementioned recommendations could be related to the lack of specific training in ILD by nurses and the belief of overlapping roles with other health professionals. The main strength of this study is the participation of a multidisciplinary team of professionals with extensive experience in the management of patients with RA-ILD and a great interest in this topic.

In conclusion and considering the fundamental role of nursing in the management and follow-up of patients, this document presents a series of recommendations to improve the health outcomes of patients with RA-ILD. Nursing knowledge and implementation of these recommendations can facilitate the follow-up and improve the prognosis of patients with rheumatoid arthritis who present with diffuse interstitial lung disease.

Funding. The study was funded by *OpenReuma,* the Spanish association of professionals in Rheumatology.

References

1. Sparks JA, Jin Y, Cho SK, Vine S, Desai R, Doyle TJ, et al. Prevalence, incidence and cause-specific mortality of rheumatoid arthritis-associated interstitial lung disease among older rheumatoid arthritis patients. Rheumatol (Oxford). 2021; 60(8):3689-98.
2. Spagnolo P, Lee JS, Sverzellati N, Rossi G, Cottin V. The Lung in Rheumatoid Arthritis: Focus on Interstitial Lung Disease. Arthritis Rheumatol. 2018; 70(10):1544-54.
3. England BR, Hershberger D. Management issues in rheumatoid arthritis-associated interstitial lung disease. Curr. Opin. Rheumatol. 2020; 32(3):255-63.
4. Barbera T, Davila L, Patel NM. Management and support of patients with fibrosing interstitial lung diseases. Nurse Pract. 2021; 46(7):39-44.
5. Lindell KO. Nonpharmacological therapies for interstitial lung disease. Curr. Pulmonol. Rep. 2018; 7(4):126-32.
6. SER-SEPAR. Recomendaciones SER-SEPAR sobre el manejo de la Enfermedad Pulmonar Intersticial Difusa asociada a la Artritis Reumatoide [Internet]; 2022 [cited 27 Sept 2022]. Available from: https://www.ser.es/recomendaciones-ser-separ-sobre-diagnostico-y-tratamiento-de-la-enfermedad-pulmonar-intersticial-difusa-epid-asociada-a-la-artritis-reumatoide-ar/
7. Grewal JS, Ryerson CJ. A closer look at the multidisciplinary interstitial lung disease clinic: Who, what and how. Respirology. 2021; 26(1):12-3.
8. (NICE) NIoHaCE. Idiopathic pulmonary fibrosis in adults: diagnosis and management [Internet]. 2017 [cited 27 Sept 2022]. Available from: https://www.nice.org.uk/guidance/cg163.
9. Bech B, Primdahl J, van Tubergen A, Voshaar M, Zangi HA, Barbosa L, et al. 2018 update of the EULAR recommendations for the role of the nurse in the management of chronic inflammatory arthritis. Ann. Rheum. Dis. 2020; 79(1):61-8.
10. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017;3 58:j4008.

11. Higgins J SJ, Page M, Elbers R, Sterne J. Chapter 8: Assessing risk of bias in a randomized trial. In: Higgins JPT TJ, Chandler J, Cumpston M, Li T, Page MJ, Welch VA, editor. Cochrane Handbook for Systematic Reviews of Interventions version 6.3; 2022.

12. Jadad AR, Moore RA, Carroll D, Jenkinson C, Reynolds DJ, Gavaghan DJ, et al. Assessing the quality of reports of randomized clinical trials: is blinding necessary? Control Clin. Trials. 1996; 17(1):1-12.

13. Schünemann H, Brożek J, Guyatt G, Oxman A. GRADE handbook for grading quality of evidence and strength of recommendations [Internet]. 2013 (cited 27 Sept 2022). Available from: https://gdt.gradepro.org/app/handbook/handbook.html

14. An J, Nyarko E, Hamad MA. Prevalence of comorbidities and their associations with health-related quality of life and healthcare expenditures in patients with rheumatoid arthritis. Clin. Rheumatol. 2019; 38(10):2717-26.

15. Radner H, Smolen JS, Aletaha D. Impact of comorbidity on physical function in patients with rheumatoid arthritis. Ann. Rheum. Dis. 2010; 69(3):536-41.

16. Loza E, Lajas C, Andreu JL, Balsa A, Gonzalez-Alvaro I, Illera O, et al. Consensus statement on a framework for the management of comorbidity and extra-articular manifestations in rheumatoid arthritis. Rheumatol Int. 2015; 35(3):445-58.

17. Castaneda S, Gonzalez C, Villaverde V, Lajas Petisco C, Castro MC, Jirout F, et al. Development and feasibility of 4 checklists for the evaluation of comorbidity in patients with rheumatoid arthritis, axial spondyloarthritis and psoriatic arthritis: GECOAI Project. Reumatol. Clin. (Engl Ed). 2022; 18(2):114-23.

18. Dougados M, Soubrier M, Perrodeau E, Gossec L, Fayet F, Gilson M, et al. Impact of a nurse-led programme on comorbidity management and impact of a patient self-assessment of disease activity on the management of rheumatoid arthritis: results of a prospective, multicentre, randomised, controlled trial (COMEDRA). Ann. Rheum. Dis. 2015; 74(9):1725-33.

19. Russell AM, Olive S, Lines S, Murphy A, Hocking J, Newell K, et al. Contemporary challenges for specialist nursing in interstitial lung disease. Breathe (Sheff). 2018; 14(1):36-41.

20. Baker KM, DeSanto-Madeya S, Banzett RB. Routine dyspnea assessment and documentation: Nurses' experience yields wide acceptance. BMC Nurs. 2017; 16:3.

21. Perez T, Burgel PR, Paillasseur JL, Caillaud D, Deslee G, Chanez P, et al. Modified Medical Research Council scale vs Baseline Dyspnea Index to evaluate dyspnea in chronic obstructive pulmonary disease. Int. J. Chron. Obstruct. Pulmon. Dis. 2015 ;10:1663-72.

22. Ritschl V, Stamm TA, Aletaha D, Bijlsma JWJ, Bohm P, Dragoi RG, et al. 2020 EULAR points to consider for the prevention, screening, assessment and management of non-adherence to treatment in people with rheumatic and musculoskeletal diseases for use in clinical practice. Ann. Rheum. Dis. 2021; 80(6):707-13.

23. Velasco-Gonzalez V, Loya-Perez L, Navarro-Garcia E, Sainz-Gil M. Reporting of suspected adverse drug reactions by nursing in Spain. An observational-descriptive retrospective study. Enferm. Clin (Engl. Ed). 2021; S1130-8621(20):30534-9.

24. Salehi T, Seyedfatemi N, Mirzaee MS, Maleki M, Mardani A. Nurses' Knowledge, Attitudes, and Practice in Relation to Pharmacovigilance and Adverse Drug Reaction Reporting: A Systematic Review. Biomed Res. Int. 2021; 6630404.

25. Dai Y, Wang W, Yu Y, Hu S. Rheumatoid arthritis-associated interstitial lung disease: an overview of epidemiology, pathogenesis and management. Clin. Rheumatol. 2021; 40(4):1211-20.

26. Salaffi F, Carotti M, Di Carlo M, Tardella M, Giovagnoni A. High-resolution computed tomography of the lung in patients with rheumatoid arthritis: Prevalence of interstitial lung disease involvement and determinants of abnormalities. Medicine (Baltimore). 2019 ;98(38):e17088.

27. Zhang Y, Li H, Wu N, Dong X, Zheng Y. Retrospective study of the clinical characteristics and risk factors of rheumatoid arthritis-associated interstitial lung disease. Clin. Rheumatol. 2017; 36(4):817-23.

28. Zamora-Legoff JA, Krause ML, Crowson CS, Ryu JH, Matteson EL. Patterns of interstitial lung disease and mortality in rheumatoid arthritis. Rheumatology (Oxford). 2017; 56(3):344-50.

29. Rice VH, Heath L, Livingstone-Banks J, Hartmann-Boyce J. Nursing interventions for smoking cessation. Cochrane Database Syst Rev. 2017;12(12):CD001188.

30. Casanova C, Baudet JS, del Valle Velasco M, Martin JM, Aguirre-Jaime A, de Torres JP, et al. Increased gastro-oesophageal reflux disease in patients with severe COPD. Eur. Respir J. 2004; 23(6):841-5.

31. Meyer KC. Gastroesophageal reflux and lung disease. Expert Rev. Respir. Med. 2015; 9(4):383-5.

32. Albarqouni L, Moynihan R, Clark J, Scott AM, Duggan A, Del Mar C. Head of bed elevation to relieve gastroesophageal reflux symptoms: a systematic review. BMC Fam. Pract. 2021; 22(1):24.

33. Capparelli I, Fernandez M, Saadia Otero M, Steimberg J, Brassesco M, Campobasso A, et al. Translation to Spanish and Validation of the Specific Saint George's Questionnaire for Idiopathic Pulmonary Fibrosis. Arch. Bronconeumol. (Engl Ed). 2018; 54(2):68-73.

34. Patel AS, Siegert RJ, Brignall K, Gordon P, Steer S, Desai SR, et al. The development and validation of the King's Brief Interstitial Lung Disease (K-BILD) health status questionnaire. Thorax. 2012 ;67(9):804-10.

35. Fernández M, Rodríguez-Barreto O, Buendía-Roldán I, Aberti M, Caro F, Ipuche F. Prevalence of anxiety and depression and their relationship with clinical characteristics in patients with interstitial lung disease. J. Gerontol. Res. 2019; 8(4):505.

36. Kalluri M, Luppi F, Vancheri A, Vancheri C, Balestro E, Varone F, et al. Patient-reported outcomes and patient-reported outcome measures in interstitial lung disease: where to go from here? Eur.Respir. Rev. 2021; 30(160).

37. Guler SA, Ryerson CJ. Frailty in patients with interstitial lung disease. Curr. Opin. Pulm. Med. 2020; 26(5):449-56.

38. Pons Raventos M, Rebollo Rubio A, Jiménez Ternero J. Fragilidad: ¿Cómo podemos detectarla? Enferm. Nefrol. 2016; 19(2):170-3.

39. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: evidence for a phenotype. J. Gerontol. A Biol. Sci. Med. Sci. 2001; 56(3):M146-56.

40. Rockwood K, Fox RA, Stolee P, Robertson D, Beattie BL. Frailty in elderly people: an evolving concept. CMAJ. 1994; 150(4):489-95.

41. Ministerio de Sanidad. Documento de consenso sobre prevención de fragilidad y caídas en la persona mayor 2014 [Internet]. Available from: https://www.sanidad.gob.es/ca/profesionales/saludPublica/prevPromocion/Estrategia/docs/Fragilidad/FragilidadyCaidas_personamayor.pdf.

42. Romero Ortuno R. [The Frailty Instrument for primary care of the Survey of Health, Ageing and Retirement in Europe (SHARE-FI): results of the Spanish sample]. Rev. Esp. Geriatr. Gerontol. 2011; 46(5):243-9.

43. Garcia-Garcia FJ, Carcaillon L, Fernandez-Tresguerres J, Alfaro A, Larrion JL, Castillo C, et al. A new operational definition of frailty: the Frailty Trait Scale. J. Am. Med. Dir. Assoc. 2014; 15(5):371 e7-e13.

44. de la Torre Aboki J. [Contribution of nurse-led clinics in the management of the patient with rheumatoid arthritis]. Reumatol. Clin. 2011; 6S3:S16-9.

45. Gomez Reino J, Loza E, Andreu JL, Balsa A, Batlle E, Canete JD, et al. [Consensus statement of the Spanish Society of Rheumatology on risk management of biologic therapy in rheumatic patients]. Reumatol. Clin. 2011; 7(5):284-98.