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Contents

Editorial

Scientific Rigor, Ethics of Publications, and the Temptation of Predatory Journals

R. Mauricio Barría P.[1]

Generation of knowledge is fundamental for progress in different scientific disciplines and professions. Specifically, in health sciences no adequate technical-professional and disciplinary progress can be made if it is not as of research, which, in many cases, has been destined and confined to the academic setting. It is precisely in this scenario that the idea of publishing has prevailed, has been promoted, and required, which has pressured the scientific and academic community in the search for this objective, sometimes in a not very rigorous manner.(1) According to the value assigned to scientific production if not published, they are limited and restricted in their hiring possibilities and academic promotions with the added impossibility of opting for improved wages.

Currently, even since some years back, it is possible to verify the increase in production of scientific research, which has resulted in an important increase in scientific production. Within this context, multiple options of journals have proliferated with an open access policy as alternative of broad and rapid dissemination of publications. Some sponsored by scientific societies, academic institutions,

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and public or private research entities whose objective is to have a rigorous means of dissemination that permits communicating research findings and academic opinions with a background of seriousness and responsibility. Nevertheless, unscrupulous groups have emerged that, supported on the idea of opening access to publications, have created journals that only seek a profitable business at the expense of researchers to whom the idea of publishing rapidly and massively seems attractive. This is how the so-called predatory journals have gained terrain and persist as alternatives to disseminate research and academic articles.

To date, there are several publications referring to the emergence of predatory journals.[2-6] Specifically, all have described with variable depth the implications of this problem, since its origin, objective and repercussions for science and knowledge and it has been generally concluded that they constitute a sort of intellectual fraud with a merely commercial backdrop. It is only necessary to have published a couple of articles that are available on the web to become a potential prey for these predatory journals and be exposed to a certain intellectual plunder. The *modus operandi* has been described[2,7] and it is fundamentally based on an e-mail message that kindly and in a very gentle and conceptual manner, values and congratulates a researcher for an article published and invites said researcher to submit similar articles or, even, extend or replicate the same article on account of a variable payment that depends on each journal. This offer could seem tempting, with the publication price discounts if the response is quick. It could be the opportunity to save that manuscript that did not prosper due to editorial rejections or because of a rigorous peer review.

However, researchers must understand that, although pressure exists for scientific production, they must weigh the ethical implications of losing academic vision and self-criticism by using these spaces to publish without major demands other than the monetary. It must be kept in mind that predatory journals constitute a dissemination alternative with serious ethical concerns. In principle, it must be considered how these journals introduce themselves with a distorted image about what they are and what they offer; furthermore, there is the lack of editorial and publication standards and practices, academic deception for allocating the efforts of authors to these journals, lack of real recognition of a good investigation, and loss of trust from readers and general public in scientific literature.[8]

In light of this situation, a difficult and complex scenario has been installed in which there is the idea of publishing merely to increase the number of publications in the antecedents and academic curricula, along with the high requirements of more prestigious journals that lessen the expectations of authors and become almost impregnable sites. However, another aspect as negative as publishing without sufficient rigor, is not publishing the findings of studies that required people, money, and time.[9] It is likely that all these situations pressure researchers and academics and expose them to making difficult decisions. *Should we publish articles that have not reached sufficient methodological standard of quality? Should we underestimate publishing an article that has been rejected by prestigious journals? What is the cost-benefit of publishing in an open-access journal that can be classified as a predatory journal? Will our academic prestige be affected if we publish in a predatory journal?* Lastly, *how can we discriminate if we are submitting a manuscript to a predatory journal?*

Currently, the publication panorama is complex, and although consolidated journals of prestige consider that predatory journals do not constitute a real threat, credibility from each science, as well as from the scientific community comprised of researchers and academics are exposed to the lack of credibility by society. This is why academic institutions and other centers involved with research must assume the challenge imposed by the current moment of scientific dissemination spaces. As an ethical imperative, good science must be safeguarded. Thus, universities and research centers must ensure that research processes, from academics and students, be based on basic standards of scientific and ethical rigor, free of conflicts of interest (or, if it is the case, declare such), and that these be disseminated in journals with sufficient scientific and academic endorsement. For this, institutions must provide sufficient training and technical support to the members of the academic-scientific community and implement some measures to discourage illegitimate journals and reduce their attractive potential.

Lastly, from the perspective of an evidence-based practice, we value a scarce usefulness of articles included in these predatory journals as scientific evidence, given the limited editorial staff and poor or null peer review processes. However, given that they are easily available, it is now more necessary for health professionals, students, academics, and researchers to have sufficient skills for the critical appraisal of scientific articles that allow them to discriminate information according to its quality.

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Original article

Protection of children and adolescents victims of violence: the views of the professionals of a specialized service

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Protection of children and adolescents victims of violence: the views of the professionals of a specialized service

Objective. To know the obstacles faced by the professionals to work in network and challenges of the work of the professionals in the Reference Center Specialized in Social Assistance (CREAS) of a municipality in the extreme south of Brazil. **Methods.** It is a qualitative study, developed with twelve professionals of a CREAS. Data collection was performed through a semi-structured interview, from April to May 2016. The interviews were submitted to content analysis. **Results.** The fragmentation among the various services that make up the victim assistance network is an obstacle for professionals as they are unable to continue the recovery and health promotion actions of these families. The professionals point out the bureaucratic procedures, the accumulation of functions and the lack of human and financial resources as a routine problem and that seriously hinders the progress of the service. **Conclusion.** For the professionals, the protection network

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presents weaknesses that compromise the guarantee of the rights of children and adolescents.

Descriptors: adolescent; child; exposure to violence; child advocacy qualitative research.

Protección a niños y adolescentes víctimas de violencia: miradas de los profesionales de un servicio especializado

Objetivo. Conocer la problemática de la violencia intrafamiliar contra niños y adolescentes a partir de la percepción de los profesionales de un Centro de Referencia Especializado en Asistencia Social (CREAS) de un municipio del extremo sur de Brasil. **Métodos.** Se trata de un estudio cualitativo desarrollado con doce profesionales de un CREAS. La recolección de datos se realizó mediante una entrevista semiestructurada, en el período de mayo a junio de 2016. Los testimonios se sometieron al análisis de contenido. **Resultados.** Entre los diversos servicios que componen la red de atención a las víctimas, la fragmentación es el principal obstáculo para los profesionales en medida que no logran dar continuidad a las acciones de recuperación y promoción de la salud de familias afectadas. Los trámites burocráticos, la acumulación de funciones y la falta de recursos humanos y financieros son destacados por los profesionales como un problema rutinario que dificulta seriamente la prestación del servicio. **Conclusión.** Para los profesionales, la red de protección presenta fragilidades que comprometen la garantía de los derechos de niños y adolescentes.

Descriptores: adolescente; niño; exposición a la violencia; defensa del niño; investigación cualitativa.

Proteção a crianças e adolescentes vítimas de violência: olhares dos professionais de um serviço especializado

Objetivo. Conhecer os obstáculos enfrentados pelos profissionais para atuação em rede e desafios da atuação dos profissionais no Centro de Referência Especializado em Assistência Social (CREAS) de um município do extremo sul do Brasil. **Métodos.** Trata-se de um estudo qualitativo, desenvolvido com doze profissionais de um CREAS. A coleta de dados foi realizada por meio de entrevista semiestruturada, no período de abril a maio de 2016. Os depoimentos foram submetidos à análise de conteúdo. **Resultados.** A fragmentação, entre os diversos serviços que compõem a rede de atendimento às vítimas, se constitui em obstáculo para os profissionais à medida que eles não conseguem dar continuidade às ações de recuperação e promoção da saúde dessas famílias. Os trâmites burocráticos, o acúmulo de funções e a falta de recursos humanos e financeiros são apontados pelos profissionais como um problema rotineiro e que seriamente dificulta o andamento do serviço. **Conclusão.** Para os profissionais, a rede de proteção apresenta fragilidades que comprometem a garantia de direitos de crianças e adolescentes.

Descritores: adolescente; criança; exposição à violencia; defesa da criança e do adolescente; pesquisa qualitativa.

Introduction

Intrafamily violence has become an increasingly common social and global problem in our society. Because it is a phenomenon with deep roots, implying immediate and future damage to the physical and mental health of its victims,[1-3] as well as the possibility of its reproduction to future generations,[3] its approach has been characterized as a public health issue. Since the implementation of the Brazilian Federal Law n. 8069 of July 13, 1990 (Statute of the Child and Adolescent-ECA),[4] which provides for the integral protection of children and adolescents, it was established that children and adolescents are a priority, and the state, society, community, family and public power should to secure their rights, as well as to put them to safety from all forms of violence.

Thus, it demands the articulation of a network that meets the needs of approaching the problem in its complexity, through interdisciplinary and intersectoral actions.[5] The network of protection for victims and their families, represented as "the set of significant people systems that make up the relationship links received and perceived by the individual"[5: 247] is made up of various sections, such as the Council of Law, the Guardianship Council (CT), the public prosecutor's office and the juvenile court, as well as the other institutions that provide care, such as schools, health units, shelters, among other social support networks. Among the various services that deal with situations of violence, the Specialized Reference Center on Social Assistance (CREAS), chosen as the locus of this research, constitutes an important reference point in the care of children and adolescents who are victims of violence. It is a state public unit, created by the federal government in partnership with the municipalities to meet the Federal Constitution, the Statute of the Child and Adolescent (ECA) and the Organic Law of Social Assistance - Ordinance No. 878 of 12/3/2001.[6]

This service has as its role to be in reference, in the territories, of offer of social work specialized in the Unique System of Social Assistance (SUAS) to families and individuals in situations of personal or social risk, for violation of rights. Its role in SUAS also defines its role in the service network.[7] In order to carry out its activities, the services offered in CREAS should be developed in an articulated way between institutions and agents that operate in a given territory sharing objectives and purposes in a continuous process of information flow and permanent dialogue.[7]

Considering the importance of the work of CREAS in the attempt to minimize the damages caused by the violence suffered and to break the cycle of violence, this study seeks the answer to the following question: What obstacles and challenges that you face in your daily work? The answer to this question can support actions that advocate the organization of the network, effectiveness and networking interactions, as well as providing solutions and

decision making, for example, the creation of public policies directed to the problems identified. In this perspective, the objective of this study is to know the obstacles faced by professionals to work together others instances and challenges the work of professionals in CREAS of a municipality in the extreme south of Brazil.

Methods

The municipality where the present study was carried out is characterized as particularly vulnerable in the situation of violence and sexual exploitation against children and adolescents. It is a port city with approximately 207,000 inhabitants, located in the southern half of Rio Grande do Sul, with the second largest port in Brazil.[8] Rio Grande is currently one of the most vulnerable point of sexual exploitation in the Federal Highways highlighted by Childhood Brazil and the International Labour Organization.[9] CREAS, installed in the municipality in 2002, was one of the pioneers in the implementation of this service. They attend daily denunciations of the most varied forms of violence against children and adolescents between zero and eighteen, elderly and women. It is a service that develops, among other actions, the social protection of young people in compliance with socio-educative measure of assisted freedom and community service provision.

Five social workers, five psychologists, a secretary and a social educator participated in the study. All twelve participants linked to the service accepted to participate in the study, by signing the informed consent term. The recommendations of Resolution 466/2012 of the National Health Council were followed, and the Ethics Committee of the Federal University of Rio Grande, under the CAAE, approved the project: 49775415.8.0000.5324. After the authorization of the coordinator of the service, the professionals working at CREAS were invited to participate in the research. Then, they were clarified as to the confidentiality of the interviewees' identity, the confidentiality of the data and the possibility of withdrawing at any time from the research. It was also clarified the way they would be identified in the work: through the letter "E" and the sequence number of the interviews (E1, E2 ... E12), thus preserving their anonymity.

The data collection took place between April and May 2016, which were previously scheduled at the professionals' workplace. The statements were recorded and later transcribed. In the data analysis, the Bardin-inspired content analysis technique was used.[10] The data were initially organized, then analyzed and categorized in order to respond to the study objective.

Results

In the process of data analysis emerged two categories, developed below, namely: Obstacles faced by professionals for networking and Challenges of the work of professionals in CREAS.

Obstacles faced by professionals for networking

Difficulty of articulation. CREAS workers reported difficulties in the different services that make up the protection network, such as lack of articulation and communication between services, as evidenced by the following statements. *There is a great difficulty of partnership, there is no connection of this network, something we could talk about, discuss the problems that come to the service (E8). In many situations, the CREAS professional sees himself alone, we do not have the support we need from the services, especially essential services that should guarantee the protection of the victims with us, but unfortunately in some cases the child is exposed, unprotected (E12).* For professionals interviewed there is a lack of articulation and commitment of the network for that service can be effective in the service. Fragmentation, among the various

services that make up the network (Guardianship Council, Juvenile and Youth Court, Police Station for Child and Adolescent Protection, Social and Health Services, Education, NGOs), constitute an obstacle for professionals as they are unable to continue the recovery and promotion of family health. The lack of effective communication between the different services that integrate the network of care for children and adolescents victims of violence, makes the work of CREAS not very effective, according to the following reports: w*hen a child arrives at the service and, after evaluating, we refer this child to different devices network service, but unfortunately we do not have the return (E7). Besides the difficulty in referrals, there is no reference and counter reference of the cases (E5). When we need to refer a child, we need to get in the queue, so we cannot solve the problem immediately (E1)*.

Effective action to guarantee the rights of children and adolescents. According to the professionals' report, when families seek help in specialized care services, the first difficulty is in providing care quickly and resolutely, which corroborates the violation of the rights of children and adolescents. *Many victims remain in waiting queues for care here at CREAS creating obstacles and even loss of contact of this family (E1).* The number of processes accumulated, the bureaucratic procedures, are pointed out by professionals as a routine problem of the specialized service network and that seriously hinders the progress of CREAS. According to the coordinator of the service, *delinquency of justice contributes to the violation of the rights of children and adolescents because the response does not come when it is needed, meanwhile the child becomes helpless, often there is evasion of the family and consequently of the victim, which may lead beyond impunity, a possible revictimization of the child and/or adolescent (E11). The problem is even greater when it requires specific measures to protect the victim, such as the removal of the family, due to insufficient institutional shelter programs for children and adolescents in situations of violence (E4).* According to E8, the service to the abuser is not yet a reality in the city due to numerous problems, including *the lack of a qualified professional to attend this type of clientele and investments in this type of professional such as training and working conditions (E8).*

Challenges of the work of professionals in CREAS

Lack of investment in training professionals. The interviewed professionals report that although they are able to identify families in situations of vulnerability and risk of intrafamily violence, *there is no support from municipal management in refresher courses and periodic training to attend to this clientele (E4).* For professionals, working with violence is a topic that in fact *requires a lot of technical preparation, which requires updated knowledge about the subject and the exchange of knowledge between different devices (E1).* Characterized as an environment with high emotional overload, it is notorious in the speech of professionals, the lack of care and appreciation of these workers by managers. The professional E2, says that *the team feels unmotivated by lack of professional appreciation and, often, no profile for the type of work. E3, perceives an authoritarian and collecting management, distant from the team and deficient in the needs of the servers. E8 already feels the need to work out the frustrations, since the work depends on other institutions and these, present resistance.*

Insufficiency of material and human resources. The accumulation of functions and the lack of human resources has compromised the good progress of the service, according to the professionals' reports. The narratives reveal how this process has been configured*: The imposition of the juridical in the questions of producing evidence, is a difficulty that we face, we need to make psychological evaluation reports (E2). The realization of psychological evaluation is not predicted as an activity in CREAS policy, but in*

the accomplishment of psychosocial monitoring, and the fact that we carry out the evaluations, we are very exposed (E5). We need to serve the entire territory and we do not have enough human resources to meet the demand (E9). Difficulties with regard to financial transfers from municipal resources also affect the service. According to the professionals, *there are no computers for all employees, which makes it unfeasible, especially in terms of agility and quality of service (E4). Often the difficulty in working on CREAS is the lack of expedient material such as educational games, psychological tests, bibliographies (E1). We miss the printer because we have to move to another device to use the printer (E10).* It is noteworthy that fifteen years have passed since the implementation of the service in the municipality and there is still no computerized system for the registration of CREAS information, thus corroborating so that the delays in service are even greater.

Discussion

The reality found allows us to bring up a problem that occurs in the daily lives of many families, which can corroborate so that silence overcomes the revelation of violence. The results of this study show that the victims are treated in the service; however, they cannot always guarantee the effectiveness of the referrals. The fragmentation of the services that make up the network of care for children and adolescents has compromised the progress of CREAS and, furthermore, exposing the victim to a possible risk of death and injuries that may affect their development. Networking is a strategy that strengthens advocacy, accountability and support for victims of violence. In the meantime, the literature reveals that actors in the networks of attention to situations of violence in the country also recognize that the interinstitutional action, rather than a principle, is an absolute necessity in the face of the complexity of the problem.[11]

The testimonies of the subjects are in line with the findings of several studies that affirm that effective and decisive care in the face of a case of violence against children and adolescents goes beyond individual, institutional and social aspects, especially in the establishment of referral and contraceptive systems.[12-14] However, this service network, although highly valued, is considered insufficient, especially in actions directed at children and adolescents who are victims of violence. It is understood that official documents related to violence are put to society, but without a wide and sufficient discussion and mobilization of the protagonists, favoring the maintenance of possible barriers as pointed out in the study. There is a movement to approve laws, ordinances and decrees related to violence, however, it is not enough to approve it only if the network for dealing with violence is disjointed, lacking in inputs and strategies, fragility of knowledge and incipient management in this sphere of violence.[12,13]

The discrediting of legal instruments, judicial organs and police authorities, as well as the disqualification of professionals in the specialized care of children and adolescents victims of violence are realities also pointed out in other studies.[15,16] They possibly contribute to that many families choose not to seek care prioritizing to protect themselves "in a wall of silence," meanwhile, children and adolescents remain unprotected. Effective action by law enforcement agencies and the judiciary is key. However, criminal accountability does not mean ensuring peace in family or social relationships. In certain situations, the legal punishment of the aggressor should be added to other measures that contribute to the promotion of a culture of citizenship, accountability and protection of children and adolescents.[17] Integral care for the victim, including the aggressor, may be an important step in the attempt to break the violence, so it is recommended that qualified care be used to re-socialize the agents that cause violence, thus avoiding the recurrence of violence.[18] Although

it is recommended that the intervention be directed not to only the victim, but also the family as the focus of attention, the results show that professionals have faced structural and economic limitations, which restricts the professional performance in the scope of intervention. It is known that this is not an exclusive difficulty of the municipality, it is also identified in other studies the inter-sectoral difficulties regarding the articulation with the care network, reference processes and against reference and interlocution of the professionals involved.[14,19]

The valorization of professional training in attending to situations of violence was one of the actions judged by the interviewees as important, since the decision making in relation to the diagnosis, care, notification and referral of the situation of violence seems to be strongly related to the knowledge of the protection of the victim, represented by legislation, but also as an ethical issue of the professional for the protection of the child under his or her care.[20] The Child and Adolescent Statute (ECA) previse a creation and investment in the qualification and training of professionals to receive and be able to attend the demand of care.[4] Although professionals have built and developed specific knowledge throughout their professional trajectory, many are inserted into the service without any preparation, what they consider as something negative for the service, because their absence increase the chances of failure in care. However, what has been observed is the search by own initiative to take courses and specialization in the area, discuss cases and professional demands as a team.

Support for professionals is essential for the operation of a service. This support encompasses all the investment needed for a policy to take place, and involves the professionals who are relating to it. Thus, it is understood that the strengthening of the care network goes not only through the expansion of specialized services, but also through the permanent training of professionals in order to ensure a qualified care for victims of violence.[21,22] Violence is not limited only to care directed at injuries, but also to a knowledge that allows to handle this problem in a more secure and qualified way, which is in line with what professionals have reported, i.e. the need for training of the teams that work with this clientele. This reinforces the need to "give voice" to these professionals in order to point not only to their desires in relation to their work, but also to health care so that they can be strengthened when the violence face them in their daily work. Thus, strengthened may have a more successful intervention with better care.

Conclusion. The effective protection and guarantee of the rights of children and adolescents is a reality that needs to be addressed, as well as overcoming situations that violate their rights, require knowledge and reflection on how municipalities are articulating in the cases of violence against children and adolescents. It was evidenced in this study that the services that make up the protection network still present weaknesses in the municipality investigated. Unpreparedness about how to work in a network, through lack of communication among workers, lack of return of the services to which the user was referenced, and the lack of accountability of the professionals involved in the care can signal, besides the lack of commitment in the guarantee of right of children and adolescents, limitations of the management and organization of the set of services that make up this network.

Thus, the disarticulation of the network, in fact, is a fragility that requires special attention from municipal management, given the need for protection organs and institutions to be articulated and strengthened, so that their actions are effective. Thus, to qualify the network, qualified and training professionals are needed, as well as the valorization of those involved.

The present study had as limitation its accomplishment in a single scenario, so these analyzes could be limited, since they represent perceptions of a particular group, and it is not possible to generalize the results. Also, it is important to note that, although health professionals are not part of these services, they must always act in an articulated way, in a multiprofessional work, either in the care and in

the formulation of a care plan focused on the real needs of families. Although the study presents limitations, the data point to the need for new investigations, considering the perception of workers from other sectors of the municipality studied, which would broaden the discussion about the obstacles and the challenges faced and would allow the planning of actions.

This study advances the production of knowledge in that guaranteeing rights to children and adolescents is an urgent necessity that needs to be addressed. It suggests, in addition to the planning of actions with a view to networking, the need for permanent education in order to qualify the protection services of the municipality under investigation.

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Pedagogic Aspects in Nursing Education: Integrative Review

Original article

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Pedagogic Aspects in Nursing Education: Integrative Review

Objective. To know the current state of development of the thematic area of nursing education related with professional training and to determine the research trends. **Methods.** Descriptive integrative review, which conducted a search in databases limited from 2005 to 2016, using MeSH and DeCS terms, like Nursing, education, Nursing education research, Nursing students, health knowledge practice, and professional competence, which analyzed 50 original articles. **Results.** The concepts that emerged were: successful didactics, caring learning process, professional skills, professor role, and pedagogic relationships. The highest levels of evidence were found in studies on didactics; however, the trends and challenges of this review are aimed at the professional skill because it becomes the transversal concept in the formation of nurses. **Conclusion.** The thematic area of nursing education related with professional training has advanced in the development and level of evidence on the

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concept of successful didactics, which is why the other concepts have remained in exploration and description whether in quantitative or qualitative studies. All the concepts analyzed have voids and the research trend is aimed at mixed, predictive, and experimental studies that respond well to this theme.

Descriptors: education, nursing; nursing education research; professional competence; learning; teacher training; students, nursing.

Aspectos pedagógicos en la formación de Enfermería: Revisión integrativa

Objetivo. Conocer el estado actual de desarrollo del área temática de educación en enfermería relacionada con la formación profesional y determinar las tendencias para la investigación. **Métodos.** Revisión integrativa descriptiva, en la que se realizó una búsqueda en bases de datos entre los años 2005 - 2016, utilizando términos MeSH y DeCS como Education nursing, Nursing education research, 7Students nursing, Health knowledge practice y professional competence, en el que se analizaron 50 artículos originales. **Resultados.** Emergieron conceptos como: didácticas exitosas, proceso de aprendizaje del cuidado, competencias profesionales, rol docente y relaciones pedagógicas. Los mayores niveles de evidencia se encuentran en los estudios sobre didácticas, sin embargo, las tendencias y retos de esta revisión se orientan hacia la competencia profesional porque se convierte en el concepto transversal en la formación de enfermeros. **Conclusión.** En el área temática de educación en enfermería relacionada con la formación profesional se ha avanzado en el desarrollo y nivel de evidencia en el concepto de didácticas exitosas, por lo que los otros conceptos se han quedado en exploración y descripción ya sea en estudios cuantitativos o cualitativos. Todos los conceptos analizados presentan vacíos y la tendencia en investigación se orienta a estudios mixtos, predictivos y experimentales que den respuesta a esta temática.

Descriptores: educación en enfermería; investigación en educación en enfermería; competencias profesionales; formación del profesorado; aprendizaje; estudiantes de enfermería.

Aspectos pedagógicos na formação de Enfermagem: Revisão integrativa

Objetivo. Conhecer o estado atual de desenvolvimento da área temática de educação em enfermagem relacionada com a formação profissional e determinar as tendências para a investigação. **Métodos.** Revisão integrativa descritiva, na qual se realizou uma busca em bases de dados limitando entre os anos 2005 - 2016, utilizando términos MeSH e DeCS como *Education nursing, Nursing education research, Students nursing, Health knowledge practice e professional competence*, no qual se analisaram 50 artigos originais. **Resultados.** Os conceitos que emergiram foram: didáticas de sucesso, processo de aprendizagem do cuidado, competências profissionais, papel docente e relações pedagógicas. Os maiores níveis de evidência se encontram nos estudos sobre didáticas, embora as tendências e retos desta revisão se orientam para a competência profissional porque se converte no conceito transversal na formação de enfermeiros. **Conclusão.** Na área temática de educação em enfermagem relacionada com a formação profissional se há avançado no desenvolvimento e nível de evidência no conceito de didáticas de sucesso, pelo que os outros conceitos se hão quedado em exploração e descrição já seja em estudos quantitativos ou qualitativos. Todos os conceitos analisados apresentam vazios e a tendência em investigação se orienta a estudos mistos, preditivos e experimentais que deem resposta a esta temática

Descritores: educação em enfermagem; pesquisa em educação de enfermagem; competência profissional; aprendizagem; capacitação de profesores; estudantes de enfermagem.

Introduction

Education is an attribute implicit in nursing; it is a characteristic seal of the profession to design innovative educational strategies for health regarding the population's needs for care; however, when referring to teaching - learning processes within nursing, it is difficult to respond to this aspect, given that managing to teach others of how and what care is requires knowledge and pedagogic skills, which is why a discipline like nursing is nourished by another, like pedagogy for the formation of competent nurses. Education is an action that manifests the intentionality of the progressive social improvement that permits humans to develop their potentialities,[1] which is why teaching - learning processes invite to a collective construction that promotes active participation of students and professors, where as human beings they bring experiences, where the learn, unlearn, and teach.[2]

For some authors who have addressed the theme,[3-5] nursing education constitutes the foundation for the profession's progress, hence, formation must guarantee the preparation of professionals who identify with their work, with high professional self-concept, and who manage their own work environments, so that nursing as a profession becomes visible and acquires the social recognition it deserves. Given the needs expressed and the educational and contextual transformations, research is necessary on themes related with the formation of nurses, thus, some questions guiding this review were: What is the current state of development of the thematic area of nursing education? What are the knowledge voids around nursing education? What are the research trends and challenges in this field?

To answer these questions, the integrative review had as objectives that of knowing the current state of development of the thematic area of nursing education related with the professional training during the period from 2006 to 2016, presenting the findings of the scientific selections, the contrast among their similarities, their theoretical and methodological approaches, and the knowledge voids found regarding nursing education for professional training and determining the trends and/or challenges for research in this field.

Methods

A descriptive integrative review[6] was conducted to answer the question: What is the current state of scientific knowledge around nursing education aimed at professional training and what research voids derive from these results? The search was carried out in the Embase, Science direct, Pubmed, Medline, Academic search complete, PsycARTICLES, BVS, LILACS, Scielo,

Scopus, and ERIC databases in English, Spanish, and Portuguese and limited to between 2005 and 2016. This time range was selected because it permits encompassing the evolution and current state of the theme, which in nursing is relatively novel. The review used the DeCS and MeSH terms of Education, Nursing, Nursing education research, Nursing students, Health knowledge practice, and Professional competence, performing the search with equations using Boolean operators of AND and OR.

Inclusion criteria for this review were original articles or those derived from research on the theme of nursing education for the formation of professionals, which included subjects, like professors and/or nursing students, during the time lapse already described and seeking to encompass the highest number of articles that could be accessed in full text. The review excluded textbooks and thesis works because of their extension, as well as reflexion and review articles because these lacked the level of evidence resulting from research processes and which was catalogued according to the Joanna Briggs Institute (JBI).[7] The strategy for search and selection of articles is detailed in Figure 1.

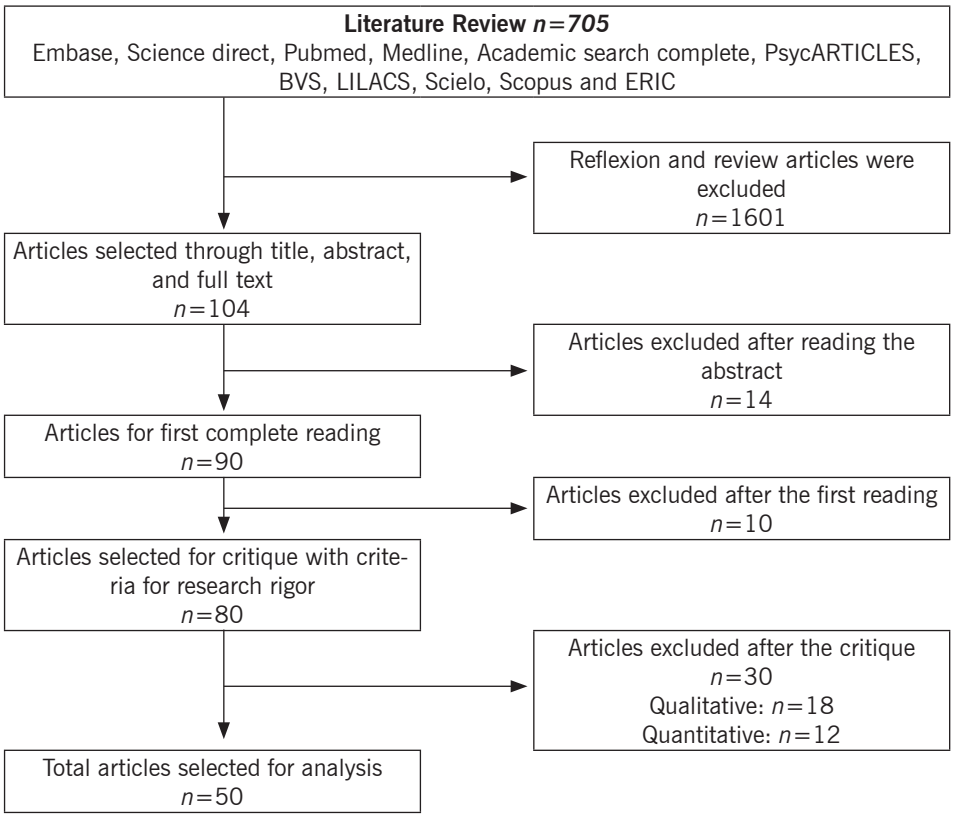

Figure 1. Flow diagram of the article search and selection strategy

To analyze the information, the articles were collected in the Microsoft Excel program, creating a matrix where a critique and analysis of these was made. To critique the quality of an article, research rigor criteria were used, bearing in mind its approach and verifying the level of evidence provided according to the JBI. For qualitative studies, the Guba[8] criteria of credibility, transferability, dependence, and confirmability were applied. In quantitative studies, criteria of internal, external, construct, and statistic validity[9] were used starting by reading the information provided in the methods and results sections of the research reported.

With respect to the analysis of the theme addressed in the articles to develop the matrix, the following variables were defined: research approach, study design, method of gathering data, analysis employed, their principal results and conclusions; thereafter, with this information condensed, the review followed the steps exposed by Guirao, Olmedo, and Ferrer,[6] which include organizing, labelling, integrating, and prioritizing to define the principal concepts.

Results

The bibliographic search in the databases yielded 1705 articles of which 104 were chosen through title and abstract relevance. After a first reading of the full article, 80 of these were critiqued through rigor criteria already mentioned; of these, 30 were excluded, 12 quantitative reports that mostly had faults in their internal and statistic validity, and 18 qualitative reports that do not clarify their confirmability of the data or such was doubtful. In the end, 50 articles were analyzed, given that they were research results or original articles that address the thematic area of the formation of nurses.

From the literature review, it was possible to determine the categories or principal concepts of the research conducted on nursing education.

This analysis process had the following phases: (i) *Organization and denomination*: organized the information by common characteristics, assigning a name to each group of articles that were related through their content and which configured a nuclear aspect of nurse formation. The denomination of each group was the reflexion of the theme or central research concept. The following categories and analysis concepts emerged from this initial phase: [(1)] didactics; [(2)] nursing education; [(3)] learning process; [(4)] clinical professor; [(5)] pedagogic relationships; [(6)] evaluation of the professor; [(7)] professor skills and nursing skills; (ii) *Integration*: upon formalizing and denominating the groups, the different groups were integrated, having as criteria their thematic and/or methodological affinity, obtaining five categories or groups, that is: [(1)] successful didactics; [(2)] the caring - learning process; [(3)] the nurse's professor role; [(4)] pedagogic relationship; and [(5)] professional skills; and (iii) *Prioritizing*: this phase organized the information according to the level of scientific evidence found in their results, an aspect reflected in Table 2, according to the JBI.[7]

Regarding the methodological distribution of the articles after their integration in the principal concepts, it may be noted in Table 1 that the concepts most-often addressed were that of successful didactics with 32% and professional skills with 24%; the concept with the least amount of articles found was that of professor role with 8%. Qualitative research prevailed in methodological approach with 58% of the total analyzed; additionally, it is observed that 34% contributes from the quantitative non-experimental a contribution to the descriptive-type evidence. Merely 2% (one article) had experimental research and meta-analysis reports in the concept of didactics, being the only concept with a level of evidence 1, according to the JBI classification for effectivity studies.

Table 1. Distribution of 50 articles reviewed according to the methodology employed and the principal concept principal addressed

Concepts	Methodological approach				Total *n* (%)
	Qualitative *n* (%)	Quantitative			
		Non-experimental *n* (%)	Experimental *n* (%)	Meta-analysis *n* (%)	
Successful didactics	9 (56.2)	5 (31.2)	1 (6.3)	1 (6.3)	16 (32.0)
Caring learning process	2 (22.2)	7 (77.8)	0	0	9 (18.0)
Nurse's professor role	2 (50.0)	2 (50.0)	0	0	4 (8.0)
Pedagogic relationship	7 (77.8)	2 (22.2)	0	0	9 (18.0)
Professional skills	9 (75.0)	3 (25.0)	0	0	12 (24.0)
Total	29 (58.0)	17 (34.0)	1 (2.0)	1 (2.0)	50 (100.0)

Table 2 presents the central concepts identified in the review with the research themes that support each concept and their predominant level of evidence. The JBI(7) classifies the levels of evidence according to the research results, that is, it establishes separate levels for studies that verify effectivity, diagnosis, prognosis, economic evaluations, and significances; this clarification is made to support understanding the following table.

Table 2. Results of grouping into central concepts, themes researched, and levels of evidence

Central concept	Themes researched	JBI Level of evidence
Successful didactics	Didactics framed on the use of narratives and reflexive writing[10-14]	Level 3 – In significance
	Evidence-based practice[15-17]	Level 4b – In effectivity
	Use of ICTs and virtual learning environments[18-21]	Level 4b – In effectivity
	Problem-based learning[22-24]	Level 1b – In effectivity
	Use of the clinical simulation[25]	Level 1c – In effectivity
Caring learning process	Reflexive thought of nursing students[26-28]	Level 3 – In significance
	Learning styles of nursing students[29-32]	Level 4b – In effectivity
	Critical thought of nursing students[33-35]	Level 4b – In effectivity
Nurse's professor role	Significance of being a professor[36-38]	Level 3 – In significance
	Duality between being a professor and being a nurse[39]	Level 4b – In effectivity
Pedagogic relationship	Importance and significance of the pedagogic relationship between professors and nursing students[40-42]	Level 3 – In significance
	Effect of the pedagogic relationship on learning by nursing students[43-50]	Level 3d – In effectivity
Professional skills	Importance and definition of nursing skills[51]	Level 4b – In effectivity
	Interpersonal and communication skills of nursing professors[52-59]	Level 3d – In effectivity
	Humanistic and ethical skills[60,61]	Level 3 – In significance

With the prior findings, it may be determined that good part of the scientific literature has described and advanced on developing the level of evidence in the following concepts: successful didactics for teaching, aspects of the pedagogic relationship, and professional skills, which is why the other concepts have remained in exploration and description whether quantitative or qualitative.

Table 3 displays the explicit voids and research trends found in the scientific literature review on nursing education

Table 3. Explicit voids of the literature on nursing educational research

Explicit voids	Research trend
Enhance transpersonal, ethical, and humanistic skills of caring in the development of students. Aspects related with skills for caring that are relevant for the formation of nurses and which favor the teaching – learning process.	The trend is toward the exploration and description of professional skills, especially in their interpersonal aspects: How are professional skills developed? What is needed to develop these skills? What happens with the interpersonal aspects of the skill?
Identify the positive and negative characteristics prevalent in the pedagogic relationships intervening in the development of nursing skills in students. Describe behaviors and interactions that make the pedagogic relationship beneficial for learning in nursing.	The trend is aimed at descriptive, comparative, and correlational studies: What aspects of the pedagogic relationship influence upon learning? What are the behaviors that characterize an effective pedagogic relationship? Do factors exist that are associated or predict effective pedagogic relationships for learning?
Preparing a nursing professional is a complex task that requires the professor having skills related not only with their knowledge, but also with the abilities acquired from their own experience in terms of being. Nursing education has voids that do not correspond to student expectations, like the pedagogic formation of the professors, their behavior and responsibility related to student learning.	The trend is still descriptive; however, with what has been found we must advance to predictive, experimental, or mixed levels: What are the professor's professional skills and behaviors that favor student learning? What is the relationship between the professor's professional skills and the student's perception of learning? What is the effect of the professor's behavior on the nursing student's learning experience?

Discussion

The following presents the discussion among the relevant findings, explicit voids, and research trends reported in the scientific literature reviewed, from the central concepts resulting from the integrative review.

Successful didactics

Regarding the concept of didactics, several results are noted on the description and development of pedagogic strategies; thus, prevailing in the use of narratives and other reflexive writings, evidence-based nursing, application of information and communication technologies (ICTs), simulation and problem- or case-based learning, with the last reaching the highest level of evidence in this review. It is important to highlight that all the didactics described have been catalogued as successful. Didactics framed within the narratives and other reflexive writings, like practice diaries and nursing situations, permit students "to let be" within their learning process, that is, it helps them to think and reflect upon what they experience in their practice without structured cognitive demands.[10,11] These writings provide information on the connection students make

between theory and practice, their fears, their appreciations on the profession, the construction of their professional identity, and perception on the professors' accompaniment.[12-14]

For the evidence-based practice, as important didactic within the nursing curriculum, some studies describe that even including this as an assignment, lack of knowledge exists on its use during the professional life;[15] however, this strategy contributes to students improving their abilities in searching for scientific information and solving problems, favoring critical thought.[16,17] With respect to the use of ICTs and virtual learning environments, it is acknowledged that these tools favor the student's autonomy and lead them to seek knowledge on their own.[18,19] In addition, a study on the use of this strategy to solve problems in nursing evidenced that 63% reached expected levels with respect to the methodologies developed to solve the cases.[20] In spite of the advantages contemplated, the sole use of ICT strategies is not recommended, rather, combined with more conventional didactics; this situation adduces that only e-learning produces dissatisfaction in students during their learning process.[21]

Learning based on cases or problems is a didactic approach that promotes the application of theory to practice and the development of abilities to solve problems. Due to the aforementioned, a meta-analysis conducted on the theme found that the size of the effect of this didactic in Nursing education is from medium to high, additionally, representing a high degree of satisfaction with learning.[22] Considering that this didactic is essential to properly identify a problem to manage it appropriately, a non-randomized clinical trial evaluating the student's performance with a simulated patient determined that the intervention group using this didactic strategy developed a better assessment of the patient than the control group using the traditional discussion.[23] Lastly, in the concept of didactics is the clinical simulation as skills assessment tool;[24] it is a highly advanced educational method that promotes technical and relational abilities and increases teamwork capacity, without the possibility of harming the patient, demonstrating that it helps to strengthen the decision making capacity.[25]

The review on the concept of didactics demonstrates that it is a widely addressed theme in nursing, that is, progress has been made on "how" to teach to care. Of the forms presented, it may be deducted: (i) students require contact with professors (work in the classroom) and this is why ICTs are a support but not the central axis, hence, highlighting the importance of Blended Learning (B-Learning); (ii) use of simulation and problem-based learning is prevalent, making it considerable to have a long-term follow up of students who use them, and (iii) progress is needed on the research level of the reflexive writings, given their usefulness to reflect on and about the students' actions.

Caring learning process

For this concept, the levels of evidence provided are of descriptive and correlation type, but generally describe the ways students learn during classes and practices, besides the contexts, mental and psychological processes that lead students to understand and appropriate the disciplinary knowledge. Thus, understanding the essence of the nursing being, the need to advance is clear on teaching aimed on technical aspects toward aspects of therapeutic relationship, the reason why diverse studies focus on strategies that let students develop reflexive thought and change their professional vision.[26,27] When students verbalize their experiences and are guided on that thinking about the action, they manage to develop a conscious attitude of their work regarding the complexity of nursing situations, abandoning automatic actions, achieving significant learning.[28]

Connected to the aforementioned, we must keep in mind the learning styles (active, reflexive, theoretical, and pragmatic) in which, for the study by López and Silva,[29] students showing greater

preference for the reflexive style tended to have higher levels of depth and orientation to the goal. This was supported by another study, which found statistically significant differences in the reflexive ($p=0.002$) and theoretical ($p<0.0001$) learning styles with these being of greater preference against active and pragmatic learning styles.[30] Aspects related with students' study habits should also be contemplated, where some investigations concluded that 78.6% usually studied alone, 85% report better learning when the theme is of interest, 76.8% think that practical activities favor their learning, and that in class 55.5% they always remember more easily the knowledge introduced visually.[31,32]

Furthermore, the position of nursing students in the 21st century regarding their teaching – learning process points to describing them as active subjects in search of greater political and critical participation as a factor that guides to a profile of nurses with greater social insertion.[33] This projection is the result of a reflexive critical approach in the formation process for which it must be based on new communication and organizational possibilities, as well as on inter-subjectivity and care relationships.[34] Diverse investigations on processes of learning about caring have described a student oriented to significant learning through reflexion, where upon being critical of their passage through nursing knowledge they are removed from automatic activities, without leaving aside that in this profession practice is of priority, so that in this aspect the challenge lies in understanding the way students develop care abilities in direct contact with people.

Nurse's professor role

For this concept, the articles found manage to framework nursing as the differentiating factor within the development of the disciplinary teaching, managing to establish its strengths, weaknesses, skills, and limits, this stems from what it means to be a professor for them and from their prior experiences as nurses. Starting from what it means for the nurse to be a professor, a study describes that it is a way of recognizing themselves in the world as beings that share experiences and that this role includes providing care, distributing tasks, supervising, and supporting students.[35] Professors indicate that their work is that of being facilitators of learning because students are the principal responsible subjects in the process, but they offer them the necessary aids to favor said process.[36]

In support of the previously stated, higher levels of student satisfaction have been observed when meetings with professors focus on their learning needs.[37] Even so, professors are most critical with themselves, this premise is reflected on a study that evaluated the competencies of nursing educators according to their self-evaluations and that of the students, which recognized their abilities for teaching, but with weaknesses in the assessment aspects.[38] This particular aspect presents a duality between being a professor and being a nurse in which the professional experience in nursing provides bases to guide future nurses, without ignoring their needs for growing in the pedagogic aspects that will support the didactic part in teaching the discipline.[39]

Given that preparing a nursing professional is a complex task requiring skills from the professors related not only with their disciplinary knowledge, but with the abilities acquired from their own experience regarding being, nursing education has voids that do not correspond to students' expectations, such as the professors' pedagogic formation, behavior and responsibility with relation to students' learning. Hence, the challenge here lies in exploring what pedagogic skills the nurses need to perform significantly in teaching.

Research trends in this concept are descriptive, nevertheless, scientific literature reports the importance of advancing to studies with levels of evidence of predictive, experimental, or mixed nature. Some questions that can guide the educational research in nursing are: What are the professor's professional skills and behaviors that

favor student learning? What is the relationship between the professor's professional skills and the student's perception of learning? What is the effect of the professor's behavior on the nursing student's learning experience?

Pedagogic relationship

For this concept, research was found describing the positive and negative factors of this relationship in the formation of nurses, and frame it within the relationships of care and its significance, aspects that are particular in the discipline. It starts from the premise that nursing students have the need to develop care abilities, along with the experience of being and feeling cared, through the pedagogic relationship, but in spite of the expressed necessity, diverse studies expose that professors ignore the effective needs of students and their importance in learning, in turn, students advocate for the warmth of the relationship.[40,41] Pedagogic relationships can generate feelings that can sensitize, approximate, or distance professors and students in the daily routine of teaching and learning of being and doing nursing.[42]

A positive experience between professors and students is perceived when each has a shared understanding of the other, when the professor is motivating, shows respect, is kind, and reliable to students, and these characteristics manage to reduce anxiety levels of students during the practices. This shows that an effective relationship helps to modify the student's behavior, ensuring positive results in the learning process.[43,44] practice skills learned in lab, and interact with patients, families, and other nurses. Although students look forward to these experiences, they often feel intimated and anxious about them. Clinical instructors play an important role in this experience and can either help or hinder student learning and self-efficacy. Using Bandura's Social Learning Theory as foundation, this descriptive study examined the relationship between perceived instructor effectiveness and student self-efficacy. Data were collected from a BSN school of nursing at a Midwestern USA comprehensive masters university. The instruments used were the Nursing Clinical Teacher Effectiveness Inventory (NCTEI In addition, it was found that a caring professor who suggests ways of improving, identifies the student's strengths and weaknesses, provides positive reinforcement, and corrects without underestimating correlates statistically with students who reported greater self-efficacy in their formation process.[45] It is, therefore, justified that for students, professors represent a model that can have positive or negative significance in the practical experience.[46]

A concept that emerges strongly within the pedagogic relationship is trust; some investigations address it and assert that it is a fundamental factor in social relationships with a particular purpose and which helps to guide to an objective, that is, when students perceive that the professor inspires confidence and supports them, help them to visualize themselves as nursing professionals.[47-49] The pedagogic relationship is the base of success in nursing teaching and learning, as stated by Rivera and Medina,[50] presence, empathy, dialogue, disposition, trust, responsibility, and autonomy contribute to establishing ethical and humanizing relationships with students, so that the challenge lies in knowing the association or connecting point between nursing care and that which the professor offers students.

Among the knowledge voids explicit in nursing, literature highlights the importance of identifying positive and negative characteristics in pedagogic relationships intervening in the development of nursing skills in students and describing what behaviors and interactions contribute for the pedagogic relationship to be beneficial for the nursing student's learning. Added to this, research challenges around this phenomenon highlight the importance of conducting descriptive, comparative, and correlational studies that answer aspects, like: What aspects of the pedagogic relationship impact upon learning? What are the behaviors that characterize an effective pedagogic relationship? Do factors exist that are associated

to or predict effective pedagogic relationships for learning?

Professional skills

Lastly, as per the professional skills for the discipline, the articles dealt with aspects, like transpersonal, empathic, compassionate and clinical care, the relevance of developing emotional and cultural abilities, which guide in the formation of students in skills for caring. The concept of competence in nursing is manifested through acquiring and developing educational, cultural, moral, investigative, and individual abilities for caring, hence, learning and teaching being and doing nursing carries the imprint of having and developing certain skills in students.[51]

Some publications argue that the formation of students requires technical and affective abilities, which is an aspect that demands more than the mere transmission of contents, it implies incorporating commitment with others, motivation, and empathy.[52] This suggests that the nurse professor's interpersonal and communicative abilities are as important as their clinical knowledge and abilities in learning.[53,54] Learning interpersonal and communicative abilities and caring for themselves is perceived as essential to care for another; although the practice still centers on technical abilities, the formation in human relations has gained relevance. For 75.8% of the students, the professor's knowledge and experience are the most important aspects, but of these, 73.4% consider that relational abilities are also primordial.[55,56] nonexperimental design was used in this study. Methods: A total of 586 student nurses from four countries (Greece, the Philippines, India, and Nigeria These interpersonal skills are also related with other skills, like leadership capacity and critical judgment, promoting the "knowing how to analyze".[57,58]

Furthermore, students who progress in their process of learning professional skills were characterized as being individuals who manage to defend their rights, express their emotions, negotiate and self-plan (16% variance), as well as being assertive in relationships with others (16% variance), in acceptance of themselves or of the other person, in facing critique and establishing a two-way communication channel (60% variance).[59] Supporting the aforementioned, perceptions of the nursing study plans and curricula, on the challenge of competent cares curros otros como la capacidad de liderezago y el juicio crñi evidence that, in relation to the psycho-emotional dimension, the need exists to implement modifications in the professional training of nurses to rescue the humanistic vision along with the scientific.[60] Added to this is ethics, which is also part of these skills and which is learnt through the professor's example in which their individual beliefs, clinical abilities, and professional commitment become the model to follow, besides promoting critical thought and the decision making capacity in situations that can be ethical dilemmas for students.[61]

Definitely, a nursing skill in general is not made explicit; rather, its attributes are addressed or a specific competence is described, which for effects of the research can be observed and analyzed with greater ease. Hence, knowledge voids explicit in literature with respect to this category encourage enhancing the transpersonal, ethical, and humanistic skills of caring in the development of students and inquiring on aspects related with skills for caring that are relevant for the formation of nurses and which favor the teaching – learning process.

Some of the research trends and/or challenges are the exploration and description of the professional competence, especially in its interpersonal aspects: How are professional and interpersonal skills developed? What is needed for the development of these skills? What happens with the interpersonal aspects of the skill?

Additionally, there is the challenge of verifying the way the professor's modelling helps to develop professional skills in students, emphasizing on didactics that favor "learning by doing". In the

same sense, aimed at the professor's modelling we must inquire on the relationship and influence of the pedagogic relationships in promoting the disciplinary learning. In general, nursing professors need to mediate in situations that involve the technical rationality with the sensitivity of the interpersonal relationship,[42] without dismissing critical judgment; this becomes a challenge within nursing educational research at a moment of the discipline during which curricula has been devised seeking to balance being, knowing, doing, and coexisting in nursing, which is why this must be evaluated in the long term with students prepared with this approach.

Conclusions. The literature review around the thematic area of nursing education related with the professional training distinguishes five large concepts: (1) successful didactics; (2) the caring learning process; (3) the nurse's professor role; (4) pedagogic relationship; and (5) professional skills. With respect to the concept of successful didactics, it was found that it is a broadly addressed theme in nursing research, that is, progress has been made in "how" we can teach to care. Of the didactics presented, it is concluded that students require professor contact and accompaniment through classroom work combined with the use of ICTs, thus, highlighting the importance of Blended Learning (B-Learning); additionally, the use of simulation and problem-based learning is prevalent, which is why it is important to have a long-term follow up of the learning achieved by the students who use them and, lastly, it is necessary to advance on the research level of the reflexive writings, given their usefulness for the formation of students' reflexive and critical thought. One of the research trends in this aspect centers on understanding the way in which students develop care abilities in direct contact with people.

About the concept of the caring learning process, the importance of the formation of the student's reflexive and critical thought can be highlighted, considering that the teaching processes acquire a situated and problematizing nature of the context in which the nursing practice takes place. Added to the aforementioned, it is stressed that the teaching – learning process is, above all, complex and lacks being linear, which encourages bearing in mind the different learning styles of students and their study habits. Currently, nursing students are characterized by being active subjects within their teaching – learning process, being a search for greater political participation to achieve greater social insertion and recognition. This projection is the result of a critical reflexive focus on the formation process for which it must be based on new communication and organizational possibilities, and relationships of inter-subjectivity and care.

With respect to the concept of the nurse's professor role, research has been aimed at the significance of the nurse being and at the competence of the professor being. Evidencing that preparing a nursing professional is a complex task that requires of professors skills related not only with their disciplinary knowledge, but also requires attitudinal, pedagogic, and ethical skills centered on student learning. Hence, some knowledge voids inherent to this concept call to explore which pedagogic skills are needed by nurses to perform significantly in teaching.

Literature demonstrates that the pedagogic relationship is the base of success of the teaching – learning process in nursing; it highlights the characteristic traits of the professor – student relationship that strengthen the formation of the traits appertaining to nursing care and which contribute to the formation of interpersonal, ethical, and humanizing skills in nursing students. The knowledge voids explicit in nursing literature underscore the importance of identifying the positive and negative characteristics prevalent in the pedagogic relationships intervening in the development of nursing skills in students and describing which behaviors and interactions contribute for the pedagogic relationship to be beneficial for the nursing student's learning.

Within the concept of professional skills for the discipline, the articles worked aspects, like transpersonal, empathic, compassionate, and

clinical care; relevance of developing emotional and cultural abilities; importance of strengthening interpersonal, ethical, and humanistic skills in nurse formation, bearing in mind that the object of nursing is that of caring for the human being's health experience. Hence, knowledge voids explicit in literature with respect to this category urge strengthening in nurse formation the transpersonal, ethical, and humanistic skills of care and inquiring on aspects related to the skill for caring relevant for the formation of nurses and which favor the teaching – learning process.

Some research trends and/or questions that emerge from the scientific literature and which can guide the educational research in nursing are: What are the professional skills and behaviors of the professor that favor student learning? What is the relationship between the professor's professional skills and the student's perception of learning? What is the effect of the professor's behavior on the nursing student's learning experience? What aspects of the pedagogic relationship influence upon learning? What are the behaviors that characterize an effective pedagogic relationship? Do factors exist that associate or predict effective pedagogic relationships for learning? How are professional and interpersonal skills developed? What is needed to develop these skills? What happens with the interpersonal aspects of the skill?

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Nursing Students' Experiences of Clinical Education: A Qualitative Study

Original article

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Nursing Students' Experiences of Clinical Education: A Qualitative Study

Objective. To comprehend the experiences of nursing students in clinical education. **Methods.** A qualitative study using conventional content analysis was conducted. Data were collected using focus group interview with 16 nursing students from two public nursing schools of Shiraz and Fasa, Iran. The participants were selected by purposeful sampling. Data analysis accomplished according to conventional content analysis. **Results.** From this study five categories were emerged: *Theory and practice disruption* (The inability to use the lessons learned in practice, Routine-oriented work, The difference between theoretical knowledge and clinical training), *Shaky communications* (Inappropriate behavior, Inadequate support of nurses, instructors and other caregivers), *Inadequate planning* (Wasting time for students in clinical training, Inadequate preparation of instructors and students*), Perceived tension* (Stress, Anxiety and Fear), *Personal and professional development* (Learning more steadily, Paying attention to

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the spiritual dimension of care, Increasing interest in the profession, More knowledge, greater Self Confidence). **Conclusion.** The results of this study showed that nursing students have desirable and undesirable experiences in clinical education in the process of training, which must be addressed with proper planning for reduce the students' problems in the clinical education of future nurses.

Descriptors: clinical education; focus groups; qualitative research; students of nursing.

Experiencias de la práctica clínica de los estudiantes de enfermería: un estudio cualitativo

Objetivo. Comprender las experiencias de los estudiantes de enfermería en la educación clínica. **Métodos.** Se realizó un estudio cualitativo en el cual se utilizó el análisis de contenido. Los datos se recolectaron mediante entrevistas en grupos focales con 16 estudiantes de pregrado de dos escuelas de enfermería de carácter público de las ciudades de Shiraz y Fasa (Irán). Los participantes se seleccionaron por muestreo intencional. El análisis de datos se realizó de acuerdo con la técnica de análisis de contenido. **Resultados.** De este estudio surgieron cinco categorías: *Interrupción entre la teoría y la práctica* (diferencia entre conocimiento teórico y el entrenamiento clínico, incapacidad para usar el conocimiento teórico en la práctica, rutinas), *Comunicaciones inestables* (comportamientos inapropiados, apoyo deficiente de enfermeras, instructores y otros cuidadores), *Planificación inadecuada* (pérdida de tiempo para los estudiantes en las prácticas clínicas, preparación inadecuada de instructores y estudiantes), *Tensión percibida* (estrés, ansiedad y miedo), *Desarrollo personal y profesional* (aprendizaje más constante, atención a la dimensión espiritual del cuidado, aumento del interés por la profesión, aumento de conocimiento y mayor autoconfianza). **Conclusión.** Los resultados de este estudio mostraron que los estudiantes de enfermería tienen experiencias deseables e indeseables en la práctica clínica durante el proceso de formación, las

cuales deben ser tenidos en cuenta con una planificación adecuada con el fin de reducir los problemas en la educación clínica de los futuros enfermeros.
Descriptores: educación en enfermería; grupos focales; investigación cualitativa; estudiantes de enfermería.

Experiências da prática clínica dos estudantes de enfermagem: um estudo qualitativo

Objetivo. Compreender as experiências dos estudantes de enfermagem na educação clínica. **Métodos.** Se realizou um estudo qualitativo utilizando análise de conteúdo. Os dados foram recolhidos mediante entrevistas nos grupos focais com 16 estudantes de graduação de duas escolas de enfermagem de carácter público das cidades de Shiraz e Fasa (Irão). Os participantes foram selecionados por amostragem intencional. A análise de dados se realizou de acordo com a técnica de análise de conteúdo. **Resultados.** Deste estudo surgiram cinco categorias: *Interrupção entre a teoria e a prática* (diferença entre conhecimento teórico e o treinamento clínico, incapacidade para usar o conhecimento teórico na prática, rotinas), *Comunicações instáveis* (comportamentos inapropriados, apoio deficiente de enfermeiras, instrutores e outros cuidadores), *Planificação inadequada* (perda de tempo para os estudantes nas práticas clínicas, preparação inadequada de instrutores e estudantes), *Tensão percebida* (estresse, ansiedade e medo), *Desenvolvimento pessoal e profissional* (aprendizagem mais constante, atenção à dimensão espiritual do cuidado, aumento do interesse pela profissão, aumento de conhecimento e maior autoconfiança). **Conclusão.** Os resultados deste estudo mostraram que os estudantes de enfermagem tem experiências desejáveis e indesejáveis na prática clínica durante o processo de formação, os quais devem ser tidos em conta com uma planificação adequada com o fim de reduzir os problemas na educação clínica dos futuros enfermeiros.

Descritores: educação em enfermagem; grupos focais; pesquisa qualitativa; estudantes de enfermagem.

Introduction

Nursing is one of the key disciplines of the health care team and play many roles in various fields.[1] Nursing education has two theoretical and clinical aspects. The clinical aspect of nursing education, due to the creation of conditions and the real environment, prepares learners for the role of care, education, rehabilitation and so on.[2] The clinical training is the mainstay of nursing education.[3,4] Nursing education faces issues in the clinical education environment, which requires special attention to the clinical environment and facilitating the context and conditions for learning the best of students' knowledge and skills.[1] The quality of nursing care depends on the quality education in the clinical setting, and the qualitative clinical education is provided, the more successful and professional students will graduate, which can result in a healthier community.[1,5]

Training includes various components such as students, instructors, resources and facilities, hospital staff, educational materials, and clinical settings. To understand the status of education, one can use the views of stakeholders and experts.[2] As stakeholders, students have a better understanding of the educational services due to their direct interaction with the clinical environment about the quality of education in the clinical setting and the problems of clinical education.[1] Clinical educational environment as the first place can be effective in choosing or rejecting nursing profession by students. Students' experiences in this environment will lead to a better understanding of the conditions prevailing at the clinical environment and thus a better understanding of the factors affecting clinical education.[5,6]

Many factors, such as the quality of instructors' education, the quality of the monitoring of the student learning process, the educational facilities and the psychological environment affecting the clinical environment, affect education of nursing students in clinical setting.[4] Identifying the problems and challenges of clinical education and timely correction facilitate the training process and improve the quality. Given the importance of clinical learning and education in nursing as well as fifteen years' experiences of researcher in nursing education and its related challenges, and that most of the studies have only slightly evaluated the clinical teaching qualities, the researchers decided to conduct a study to get a deeper and more comprehensive view on nursing students' perception of clinical education with a qualitative approach aimed at explaining students' perceptions of this important phenomenon.

Methods

A qualitative descriptive design using a content analysis approach was used to comprehend the experiences of nursing students in clinical education. According to qualitative researchers, individuals actively participate in social

interactions and have different experiences. Qualitative descriptive design is an appropriate tool for obtaining rich and deep information from participants.[7] In this research, the participants (16 nursing students) were selected using purposeful sampling and were approached face-to-face, proportional to qualitative research. In this type of sampling, which is widely used in qualitative researches, the researcher is looking for those who have a rich experience in the phenomenon studied and the ability and willingness to express it clearly. Sample size criteria in this study were similar to qualitative studies to reach data saturation (by 16 nursing students), and where new data were not collected; sampling was completed.[8] Sixteen nursing students from the 5th semester in two nursing schools (Iran) who had sufficient clinical experience in the hospital and wished to express their experiences and views, were selected to participate in the study. The important characteristics of participants were willingness to sharing their experiences, having experiences in clinical learning environment and were from two genders. All participants completed the interview till the final stage of the study and no one dropped out. A relationship was established between researcher and participants prior to study commencement. The participants were explained about the goal of study, reason for doing the research and they know the researcher. Subjects were interviewed by focus group method for open and semi-structured interviews. The place of conducting interview was determined by agreement between researcher and participants (in nursing school, at the office of researcher). Interviews with nursing students were conducted by corresponding author (Majid Najafi Kalyani, Ph.D, Assistant Professor at the time of study, Male, 34 years old) and recorded by voice recorder device after getting permission of participants. In the place of conducting interview there were the researcher and participants and no one else present. The researcher had 15 years' experiences in nursing education and 5 years in conducting qualitative research. The interview was started with a general question: How did you describe one day of your clinical education? Then, based on the obtained data, more questions were asked for further explanation, and for obtaining in-depth data. This question was tested in three pilot interviews. Each focus group interview lasted from 80 to 120 minutes. There were not repeat interviews. Data analysis was performed using content analysis approach. After handwriting the interviews, each transcribed interview was read and the text was broken up in units of meaning. In the next step, the primary codes related to each other were grouped into one group. Subsequently, each of the codes obtained was adapted to the participants' statements. In the final step, based on similarity and content, subcategories were integrated to main categories.[7,8] Data coding and analysis were done by two researchers.

For trustworthiness of data several methods were used: Prolonged engagement, a review of the analysis performed by Peers check and reviewing the entries by the participants in the member check.[7] The objectivity of data, which is important in qualitative research, means that the two researchers had the same results from handwritten notes and reports. Objectivity of the data was done through continuous involvement and investigation, appropriate treatment and accuracy in all stages of the research and clarity of the research method.[7] The regional ethics committee of Shiraz University of Medical Sciences approved this study (IR.SUMS.REC.1395.S976). Before data collection, participants informed about the objective of the study and their written informed consent was obtained. The participants were assured that their information would remain confidential and were allowed to leave the research process at any time. Moreover, each quotation was identified by participants' number in the results.

Results

Three hundred forty-eight initial codes were extracted from research data. After classification, the experiences of nursing students were divided into five general categories including theory and practice disruption, shaky communications, inadequate planning, perceived tension and personal and professional development (Table 1).

Table 1. Categories and Sub-categories derived from the experiences of nursing students from clinical education

Main category	Sub-category
Theory and practice disruption	The inability to use the lessons learned in practice Routine-oriented work The difference between theoretical knowledge and clinical training
Shaky communications	Inappropriate behavior Inadequate support of nurses, instructors and other caregivers
Inadequate planning	Poor training planning Wasting time for students in clinical training Inadequate preparation of instructors and students
Perceived tension	Stress Anxiety Fear
Personal and professional development	Learning more steadily Paying attention to the spiritual dimension of care Increasing interest in the profession More knowledge Self Confidence

Theory and practice disruption

From the viewpoint of the students participating in the study, the disruption of theory and practice in nursing was part of their perceived experiences of clinical training. This class has implications of the inability to apply the lessons learned in practice, the routine, and the difference of clinical training with theoretical knowledge. Participants in the study believed that their lessons in the classroom could not be used in clinical training and in work with patients. The majority of students experienced this problem. Participant 12: *In your lessons, principles and techniques tell us something about dressing up saying that you have to step in the steps ... but in the ward, there is nothing like that... they do it as they wish and tell us you do not need to act like practice.* Participating students saw the contradiction between theory and practice as a source of confusion. Participant 7: *In the ward, some staff is working very different from what we read. These makes me confused and not know exactly what to do.* In addition, personnel routine leads to a greater disruption of theory and practice from the students' perspective. Participant 3: *We went to different wards, the nurse and the instructor who taught us when we did not have a student and we were with them, the routine and misleading ones, who themselves knew what they were doing wrong, themselves admit to non-sterile effects.*

Shaky communications

Participants in this study believed that the fragile and insecure communication with them by nurses, educators and other staff in influences clinical

training. Inappropriate behavior and lack of support from instructors and nurses were the constituent concepts of this class. Students who participated in the study said that in the face of the problems and the questions they had faced, the staff had an inappropriate behavior with them, which affected their clinical training. Participant 15: *I was asking about the penicillin injection ... I went to ask the nurse. "Go and ask your instructor," she said with an offensive and ridiculous behavior ... I tried not to ask them again if I had a question.* The lack of adequate support from trainers in clinical training was another one that was experienced by students. Participating students believed that lack of support from instructors would reduce their eagerness to learn and pursue training. Participant 2: *On the sick side, I wanted to have an angiocath, the instructor told me you cannot; let your friend do so. If I make a mistake, the instructor should support me to learn." This lack of support makes me lose my confidence and unable to learn.* Inappropriate behavior with the student causes his lack of follow up and his interest in clinical training. Participant 13: *I was by a patient whose doctor came with the medical students for a visit ... I greeted them but they did not answer. Although I wanted to stay and see what I was doing, I came to the sick room but with this behavior, I went out.*

Inadequate planning

Participants in this study experienced poor training planning, wasting time in clinical education, and inadequate skills of instructors and students in clinical education, and considered it a factor in poor clinical training. Nursing students believed that poor training and planning in clinical training affect their motivation and their interest in learning in the learning environment. Participant 6: *Some of the trainings we go to are not at all clear which goal we are seeking, as if it was just going to take a course. As such, there's no interest and motivation for us.* Some students said their apprenticeship planning and their clinical training would waste their time in clinical training. Participant 9: *Some units of the theory are not practical, and we just waste time. From morning to noon, we go to the ward and in the end, we see losing our time today.* In addition, participating students believed that their lack of knowledge and skill and their instructors were effective in clinical training. These students considered their scientific readiness and scientific and practical training of instructors as a prerequisite for clinical training. Participant 4: *Some trainers' information is not up-to-date, such as what is happening or what is new or what is new in the clinic or drug information, sometimes the instructors do not know much (they were student 30 years ago). A trainer who cannot, for example, use Foley catheter how can he teach his students.*

Perceived tension

One of the classes related to the experiences of nursing students was the perceived tension. Nursing students experienced clinical training with stress and anxiety and believed that the clinical training environment and the nature of clinical training would cause them problems. Participants in this study considered the clinical training as stressful and believed that doing work on the patient caused their stress and anxiety. Participant 11: *I am stressed when I want to go over the head of the patient and do angiocath. All of this I think that I will ruin and the patient's veins.* The majority of participating students expressed their stress in the clinical training by presenting their work in the presence of the trainer. Participant 6: *I was in the emergency ward that I went to angiocath for one of the patient. The professor came up to me and told me that if you did it right, I would give you a score of twenty if I do not do more than fifteen if you do it right ... I could not do the right thing, because the master made me stressed out.*

Participating students mentioned the fear of unknowns, the fear of not doing the job and the fear of scores by the instructor as sources of stress. Participant 8: *When the instructor tells me to go over the sick and do the sick work ... I have a lot*

of fear and stress not to make mistakes, and if the instructor understands will reduce the score from me. The experience of teaching practical skills for the first time was another reason for the stress and anxiety of nursing students. Participant 15: *The first time our trainer wanted to teach us how to stitch, he was a sick person who was torn. I was very stressed, even though our trainer did it, but my hands and feet and the rest of the kids shook.*

Individual and Professional Development

One of the positive experiences of nursing students from clinical training classes is the individual and professional development. In this study, the participants referred to more sustainable learning, attention to the spiritual dimension of care, increased interest in the profession, more knowledge and self-confidence. According to students participating in the research, clinical training improves the learning and sustainability of their learning. Students believed that the use of learning in clinical training would make them learn deeper. Participant 10: *What we read and understand the thing we read in theory here objectively, which makes learning better and stabilized.* The nursing students participating in the study believed that clinical training would further increase their attention to the spiritual dimension of nursing and caring for the patient. Participant 1: *We did not notice much about the issues of the class we were in. Now that we have come to the hospital and we are educating the sick, we just found out how spirituality of nursing is high. The very doing of something for the patient itself is of general spiritual value. This is my spiritual dimension, which increases my interest in the field and ignores many of the problems.* Clinical training from the perspective of students has made them more aware of the nursing profession. Participant 5: *When I came to see hospitals, received training, and worked on the patients, I just realized what the nursing was, what I did not know exactly at the time. Now, it is completely clear to me what kind of career it is, what place I am, what I have to do. In general, I know much more.* Another positive aspect of clinical training, from the perspective of nursing students, was increasing their self-confidence. Participating students believed that work on patients and training in the hospital's real environment increased their self-confidence. Participant 14: *When you do something some times for your patient, you yourself are confident that you are doing it yourself, you learn, you will learn more, for the next time you want to do it, you do not worry, you are sure that you have done the right thing as you did it right before.*

Discussion

The results of this study showed that nursing students have a number of desirable and undesirable experiences during clinical education. Theoretical and practical disconnection, shaky relationships, inadequate planning, and perceived stresses were classified in the domain of undesirable experiences, and personal and professional developments were classified in the domain of desirable experiences. The disconnection of theory and practice in nursing was part of the experiences perceived by the students from the clinical education. Participants in this study believed that what they learn in the classroom is not applicable to clinical education and working on the patients. In their study, Salehiyan *et al.*[9] mentioned the existence of a gap between theory and practice. The studies carried out show that the disconnection of theory and practice, in addition to learning and educational problems, causes stress and do not received good support in students as well.[10,11]

The experiences of the majority of students in this study indicated the inconsistency of theory and practice in nursing. Besides this, the personnel were being routine oriented leads to the disconnection of theory and practice being noticed more from the perspective of the students. These results are consistent with the results obtained by other studies and show that the gap between theory and practice in nursing

has its roots in the history of nursing education, and solving this problem requires the coordination and collaboration of instructors, nurses, students, and managers.[10-13]

Another undesirable experience of nursing students was shaky relationships. In addition, insufficient support by the educators in the clinical education was another case that was experienced by the students. The participating students believed that the lack of support from educators would reduce their eagerness to learn and pursue education. The results of a study performed by Chan *et al*.[14] in Hong Kong showed that lack of adequate support for the students by the educators leads to stress in nursing students in the clinical education environment. In his study, Salehiyan and Armat[9] showed that the lack of the support of the educator from the students would discourage them. In their study, Rahimaghaee *et al.*[15] pointed out the unsupportiveness of the clinical environment and they also mentioned the personnel as the negative learning patterns. These students were complaining about the rejection by the personnel and their undesirable relationships, which they introduced these cases as the subtheme of unsupportive atmosphere. Shen and Spouse[16] in their study have pointed out the bad and harsh treatment of students in the clinical environment. In the research of Saifan *et a*l.[11] more than half of participants complained that they were treated improperly by their instructors in clinical learning environment. Poor educational planning, wasting the time of students in the clinical education and inadequate preparation of educators and students in clinical education was another undesirable experience of nursing students from clinical education in nursing. Kermansaravi *et al*.[17] in their study, showed that the job description of the students in some sections are not clear and the educational planning is not in a desirable condition. Some of the participating students in the study stated that the undesirable planning of their apprenticeship and clinical education wastes their time in the clinical education environment.

Another category related to the experiences of nursing students from the clinical education was the perceived stress. Nursing students experienced the clinical education with stress and anxiety and believed that the clinical education environment and the nature of the clinical education would cause problems among them. Students struggle with various problems in the clinical environment. These problems cause stress among the students and will entail psychological problems such as anxiety and depression.[18] Studies have shown that the clinical experience is one of the most stressful components of the nursing education program. Lack of sufficient clinical experience, unfamiliar environments for the students, difficult patients, fear of making mistakes, and concerns about the evaluation by instructors, have been mentioned as stressful situations in the clinical experience.[19-21] The majority of the participating students expressed the source of their stress as performing their work in the presence of an educator. The participating students mentioned the fear of unknowns, the fear of not doing their job properly and the fear of reduced score by an educator as the sources of their stress. The clinical environment is inherently stressful, and factors such as new situations, uncertainty about the results of caring practices, the fear of providing the wrong care, changes in the patient's natural conditions, lack of sufficient knowledge and skills in care, lack of familiarity with the clinical environment, work with unwell patients, and the feeling of being under supervision cause the incidence of stress in the students.[22-24]

One of the desirable experiences of nursing students from the clinical education was the individual and professional development. In this study, participants pointed out the more sustainable learning, attention to the spiritual dimension of the care, increased interest in the profession, higher knowledge, and selfesteem. Clinical education can lead to more sustainable learning in nursing students.[25] Another positive aspect of clinical education, from the perspective of nursing students, was the increase in their selfesteem. The participating students believed that work on patients and training in the hospital's real environment increased their self-esteem.

In their study, Heshmati *et al*.[26] found that the selfesteem of the students increased in the clinical education environment and it consequently caused the promotion of their learning. From the perspective of the nursing students, the clinical education, and along with it the support of nursing staff in teaching new situations, causes an increase in their selfesteem.[27]

Conclusion. The results obtained in this study showed that the undesirable experiences of nursing students from clinical education, such as the disconnection of theory and practice, shaky relationships, poor educational planning, and the perceived stress, have an important and influential role in the education of these students. Nursing students believe that the reduction of the gap between the theory and practice, and practice along with the support of nursing staff and educators in their clinical education, leads to their better education. Additionally, proper planning and sufficient preparation reduce the students' problems in the clinical education. Considering the role of clinical education in the development of individual and professional skills of the nursing students, the results of this study could be helpful in the fundamental planning of nursing education and its qualitative improvement.

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The relationship between knowledge management and creativity in bachelor degree compared to master degree nursing students

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Original article

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The relationship between knowledge management and creativity in bachelor degree compared to master degree nursing students

Objective. To investigate the relationship between knowledge management and creativity in undergraduate compared with master degree nursing students. **Methods.** This cross-sectional study was conducted with nursing students of the faculty of nursing and midwifery in an urban area in the southeast of Iran from August 2017 to January 2018. In this study, 180 students were selected using a simple random sampling method (Bachelor degree=120 and Master degree=60). Data was collected using the Nonaka and Takeuchi's knowledge management and Randsip's Creativity questionnaires. **Results.** There was a direct and significant relationship between knowledge management and creativity in the students (r=0.47 in Bachelor degree and r=0.36 in Master degree). The mean scores of knowledge management dimensions

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and creativity were higher in the master degree students. **Conclusion.** There was a relationship between knowledge management and creativity in the bachelor and master degree students. It is necessary to corroborate the Efforts for the implementation of strategies for the knowledge management in all its dimensions. Therefore, the education environment can help with the development of students' knowledge and skills.

Descriptors: students, nursing; creativity; knowledge management; education, nursing; surveys and questionnaires.

Relación de la gestión del conocimiento y la creatividad en los estudiantes de pregrado en comparación con los de la Maestría en Enfermería

Objetivo. Investigar la relación entre la gestión del conocimiento y la creatividad en los estudiantes de pregrado en comparación con los alumnos de Maestría de Enfermería. **Métodos.** Este estudio de corte transversal se realizó con estudiantes de la Facultad de Enfermería y Partería en un área urbana en el sureste de Irán. Para el efecto, se seleccionaron 180 alumnos mediante un método de muestreo aleatorio simple (pregrado=120 y maestría=60). Los datos se recolectaron utilizando la escala de gestión del conocimiento de Nonaka y Takeuchi y el cuestionario de Creatividad de Randsip. **Resultados.** Hubo una relación directa y significativa entre la gestión del conocimiento y la creatividad en los dos grupos de estudiantes (r=0.47 en Pregrado y r=0.36 en Maestría). Las puntuaciones medias de los instrumentos de gestión del conocimiento y de creatividad fueron más altas en los estudiantes de Maestría. **Conclusión.** Hubo una relación directa entre la gestión del conocimiento y la creatividad en los estudiantes de pregrado y Maestría en Enfermería, por lo tanto,

el entorno educativo puede ayudar con el desarrollo del conocimiento y habilidades de los estudiantes

Descriptores: estudiantes de enfermería; creatividad; gestión del conocimiento; educación en enfermería; encuestas y cuestionarios.

Relação da gestão do conhecimento e a criatividade nos estudantes de graduação em comparação com os do Mestrado em Enfermagem

Objetivo. Investigar a relação entre a gestão do conhecimento e a criatividade nos estudantes de graduação em comparação com os estudantes de Mestrado de Enfermagem. **Métodos.** Este estudo de corte transversal se realizou com estudantes da Faculdade de Enfermagem e Parteira em uma área urbana no sudeste de Irão. Foram selecionados 180 alunos mediante um método de amostragem aleatório simples (graduação=120 e mestrado=60). Os dados se coletaram utilizando a escala de gestão do conhecimento de Nonaka e Takeuchi e o questionário de Criatividade de Randsip. **Resultados.** Houve uma relação direta e significativa entre a gestão do conhecimento e a criatividade nos dois grupos de estudantes (r=0.47 em graduação e r=0.36 em Mestrado). As pontuações médias dos instrumentos de gestão do conhecimento e de criatividade foram mais altas nos estudantes de Mestrado. **Conclusão.** Houve uma relação direta entre a gestão do conhecimento e a criatividade nos estudantes de graduação e Mestrado em Enfermagem, por tanto, o entorno educativo pode ajudar com o desenvolvimento do conhecimento e habilidades dos estudantes.

Descritores: estudantes de enfermagem; criatividade; gestão do conhecimento; educação em enfermagem; inquéritos e questionários.

Introduction

Nowadays, medical science universities emphasize the development of knowledge management to promote students' competencies as knowledgeable evidence-based decision-makers. knowledge is the most important asset of universities and the primary source used by nursing educators and students. University's responses to ever-increasing changes in the community are facilitated through knowledge management. In strategic planning, the mission of universities is to emphasis on the production, preservation and transfer of knowledge.[1] The capital of educational knowledge has in the forms of explicit and tactic.[2] Explicit knowledge is stored in official languages in databases and easily distributed among individuals. Hidden knowledge exists in the minds of individuals and is deeply embedded in the actions, experiences, values and desires of individuals.[3] Knowledge should be managed in an appropriate manner,[4] because it is related to the most important organizational capital as intellectual capital.[5]

The dynamic of mental and social factors is the cornerstone of the production of knowledge. The dynamism of the mind is characterized by criticism and creativity. Nursing practices are related to creative activities that lead to the production of explicit knowledge of tacit knowledge. There is a positive comorbidity between students, peers and nursing educators in building knowledge. When a student asks a question, he/she studies it with an open mind through discussions with their counterparts or educators and examines answers from different perspectives to generate new knowledge. The use of knowledge management strategies in nursing education leads to deep learning, decision-making and problem-solving by nursing students in clinical situations. The implementation of knowledge management in medical sciences universities provides an opportunity for educators, students and staff to acquire knowledge from the environment and use it in a variety of professional fields, share them and create creatively new knowledge.[1]

The importance of creativity is so high to provide innovative solutions for decision-making and problem solving when community services are provided.[6] Sometimes community health services are provided in environments where official research literature is inaccessible to guide performance. Health organizations should provide creative responses to increasingly and complex health problems, and staff creativity is changed based on the needs and aspirations of clients.[7] In crisis and epidemics, health care providers need to reports and new Statistical information and there should be no delay in decision making.[8] Therefore, Health sector due to association with community health need to use efficient methods for knowledge management through the use of modern information management techniques and the allocation of appropriate time.[9] Therefore, with regard to professional challenges, it is essential for nursing students to be educated with a set of different skills and their applied

knowledge is developed based on professional needs and problems.[1] In other disciplines, there has been a relationship between knowledge management and creativity. Also, individuals and organizations need to use knowledge to improve their creativity, and the appropriate use of knowledge depends on creativity.[10] In recent years, academic institutions as the center for the production and dissemination of knowledge, more than any other organization, need to consider the management of knowledge and creativity in teaching-learning for nursing students.[3] It is believed that students should practice in all fields of healthcare and pay enough attention to the health needs of clients and family members, educate them, and provide community services within the existing knowledge framework and creativity.[11]

While in numerous studies, knowledge management and creativity have been evaluated in university instructors, school administrators, staff and librarians; so far researchers of this study have not investigated the relationship between knowledge management and the creativity among bachelor degree nursing students compared to master degree nursing students. In addition to, the results of studies showed that everyone has considered knowledge management from a particular point of view. Some have emphasized the implementation of knowledge management, and some aspects of knowledge management dimensions have been considered. In health-oriented organizations, there is a gap between knowledge management and its application, which should be bridged[12] Considering that public health depends on the health services provided by educated healthcare staff, nursing students should be able to think critically and creatively in all areas of care in the society based on the existing knowledge framework. On the other hand, planning and providing solutions to problems are subject to comprehensive and complete information about the problem. If the skill of knowledge management and creativity in master degree students is higher than that in bachelor degree students, one can hope that the problem will be solved through increasing individuals' experiences; otherwise it can be emphasized that to increase individuals' abilities, thinking about other strategies and solutions are needed. Therefore, to investigate the relationship between knowledge management and creativity of bachelor degree nursing students compared with master degree nursing students.

Methods

This descriptive-correlational study was carried out during August 2017 to January 2018. The population of study was undergraduate and postgraduate nursing students from a faculty of nursing and midwifery in south-eastern (Iran) (n=182, n=95 respectively). The sample size was determined using the NCSS software given α=0.01, β=0.05, 95% CI and r=0.535. Therefore, at least 52 students for each education degree were required. Because of increasing power of study and considering that the number of undergraduate students were more than postgraduate students; therefore, 120 undergraduate students and 60 postgraduate students were recruited using a convenience sampling method.

Inclusion criteria for bachelor degree students were finishing one academic year at the time of the completion of the questionnaire. Also, for master degree students in nursing, inclusion criteria were completion of at least one academic semester at the time of the study and one year of work experience. Exclusion criteria were withdrawal from or lack of interest in participation in the study or incomplete filling out of questionnaires. Initially, necessary permissions were obtained from university authorities (decree code: IR.SUMS.REC.1396.S409). Also, oral and written informed consent was obtained from the students. They were assured of their anonymity and confidentiality of data throughout the study. Descriptive and inferential statistics via the SPSS software v.11 were used for data analysis. The statistics used to compare means and correlations, and for

the regression were t-test, Pearson Correlation Coefficient and Linear Regression, respectively. The significance level was set as $p<0.05$.

The research instrument was consisted of three sections of demographic characteristics, Nonako and Takeuchi's knowledge management questionnaire[13,14] and Randsip's creativity questionnaire.[15] The knowledge management questionnaire was developed by Soltan Hosseini and Mousavi based on the Nonaka and Takeuchi model. It had 26 closed-ended questions with a five-option Likert scale for four dimensions of externalization (Questions 1-5), combination (Questions 6-16), internalization (Questions 17-20) and socialization (Questions 21-26).[13]To assess the validity of the questionnaire, construct validity was used by exploratory factor analysis using varimax rotation (orthogonal) with Kaiser normalization, which was reported appropriate.[14] Also, Content validity of this questionnaire was confirmed by faculty members. The reliability of this questionnaire using the calculation of the Cronbach's alpha coefficient was reported as 0.88.[13,14]

Randsip's creativity questionnaire was used for the evaluation of creativity. It had 50 questions with a five-point Likert scale (+2=I fully agree, +1= I agree, 0=I have no idea, -1=I disagree, -2=completely disagree). In this questionnaire, the range of scores was from - 100 to +100 with the higher score representing higher creativity. The rating scores were as follow: (80-100=very creative, 60-79=high average creativity, 40-59=moderate creativity, 20-39=creativity less than average, -100 to -9=uncreative). Original Randsip's Creativity Questionnaire to measure an individual's level of creativity was developed by Randsip. Ivancevich and Matteson in the management and organizational behavior book in the chapter entitled "Decision" have been reported Randsip's Creativity Questionnaire as perfect instrument measure creativity in organizations with desirable reliability and validity. Except for items 4 and 39, the factorial load of 50 questions is between 0.30 and 0.58. To evaluate the reliability of the questionnaire, the Cronbach's Alpha method was used and the calculated Coefficient was 0.74 which indicating appropriate reliability of the questionnaire.[15] Validity of this translated questionnaire was assessed by Poursoltani Zarandi and Iraji (2014) using experts' perspectives. Its reliability using the calculation of the Cronbach's alpha coefficient was reported as 0.92.[16]

Results

In this study 72.5% of bachelor degree students and 65% of Master degree student were women; this difference was statistically significant ($\chi2=5.51$, $p=0.018$). The mean age of the bachelor and master degree students' group were 22.03 ±2.66 and 30.73±5.22, respectively. Its p-value t –test was $p<0.001$).

There was a significant difference for the mean of the total score and for the dimensions externalization and combination between groups; higher scores were observed in the master degree nursing students for the total score and for the dimensions externalization and combination. (Table 1)

Table 1. Comparison of the mean of knowledge management by dimensions by group of students

Dimension	Bachelor degree $n=120$	Master degree $n=60$	t-test p-value
	Mean±S.D	Mean±S.D	
Externalization	3.27±0.77	3.64±0.62	0.002
Combination	3.24±0.63	3.51±0.56	0.005
Internalization	3.06± 0.87	3.00±0.71	0.62
Socialization	3.12± 0.76	3.28±0.66	0.17
Total	3.17± 0.75	3.35±0.63	0.02

Also, according to the Randsip's creativity scores, the level of creativity in bachelor degree students was worse than in master degree students (80.8% versus 65% of uncreative and lower than the average, respectively by group), and this finding was significant ($\chi 2=8.48$, $p=0.003$) (Table 2).

Table 2. Distribution of creativity levels by group of students

Group Creativity level	Bachelor degree *n* (%)	Master degree *n* (%)
Uncreative	46 (38.3%)	13 (21.7%)
Lower than the average	51 (42.5%)	26 (43.3%)
Average	11 (9.2%)	13 (21.7%)
Higher than the average	12 (10%)	8 (13.3%)
Very creative	0 (0%)	0 (0%)

The results of the Pearson correlation coefficients (Table 3) showed that there was a direct, positive and significant relationship between the total score of knowledge management and creativity in the bachelor and master degree students with moderate and low correlations, respectively.

Table 3. Comparison of the correlation between knowledge management and creativity scores by group of students

Knowldge management	Creativity	
	Bachelor degree	Master degree
Externalization	0.41***	0.41***
Combination	0.50***	0.31**
Internalization	0.37***	0.08*
Socialization	0.40***	0.47***
Total	0.47***	0.36**

*:$p>0.05$, **: $p<0.01$, ***: $p<0.001$

According to the results of the regression test, the multiple correlation coefficients of the four factors of externalization, combination, internalization and socialization, and the creativity were reported as 0.24. Also, determination coefficient indicated that 0.26% of changes in creativity were determined by these four factors. Of the dimensions of knowledge management, combination with $\beta=0.37$ had the highest share in explaining the variables of creativity in bachelor's degree students. Also, the multiple correlation coefficients of the four factors of externalization, combination, internalization and socialization, and the creativity were reported as 0.30. The determination coefficient indicated that 0.34% of changes in creativity were explained by these four factors. Of the dimensions of knowledge management, the dimension of socialization ($\beta=0.69$) had the greatest contribution to explaining the variables of creativity in the master degree students.

Discussion

In this study, the relationship between knowledge management and creativity in bachelor degree nursing students compared with master degree nursing students was assessed. The findings of the study showed that there was a positive and significant relationship between knowledge management and creativity in the students, so that the highest correlation was found between knowledge management and creativity in the dimension of 'combination' in the bachelor degree students. Also, the highest correlation between knowledge management and creativity was reported in the dimension of 'socialization' in the master degree students. It should be noted that there were a few studies on the basis of knowledge management dimensions of the Nonako and Takeuchi models. Therefore, in reviewing related research in this section, it was inevitable to cite articles related to these dimensions.

According to the results of this study, there was a significant difference between the mean scores of knowledge management in the bachelor degree students and master degree students; so that the mean scores of knowledge management in the master degree students were higher than the bachelor degree students. In another study, students with PhD degree education had a higher knowledge management score.[17] Interactions and discussions in master degree classes provide a convenient platform for knowledge development. On the other hand, knowledge generation as a result of research projects and homework assignments provides a platform for individual growth[1] It seems that students' activities in higher education levels are associated with a deeper knowledge and understanding. Also, they emphasis on knowledge-based organizations, rather than production-driven organizations and up-to-date knowledge.

Based on the findings of this study, the scores of externalizing, combination and socialization in the master degree students were higher than those of the bachelor degree students. In a study on medical students in the field of knowledge management, they acquired the highest score in knowledge saving.[17] In the study by Hassanian et al's, research was the most important knowledge production strategy in nursing students.[1] The results of a study showed that knowledge management was facilitated through sharing information and sharing learning.[18] Master degree students in this study used these strategies more than the bachelor degree students. They made knowledge available to other students, personalized hidden knowledge privately and exchange it with other students. In addition, they shared their views, experiences, and mental models through face-to-face social interactions to develop knowledge with others. However, bachelor degree students were more likely to use internalization, which means translating objective and obvious knowledge through its interpretation into hidden knowledge and was accomplished through learning in action.[19] It should be noted that in the undergraduate nursing studies, the present study emphasizes learning mainly in the clinical setting. Academic educators and clinical

nurses are the largest source of learning for undergraduate students. However, in the master degree education, besides learning in the clinical setting, nursing research and the application of nursing theories in practice are emphasized. Therefore, undergraduate students use group discussions, interactions with peers and nursing educators, critical questions and research in nursing practice.

According to the findings of this study, there was a significant difference between the mean score of creativity in the bachelor degree and the master degree students, so that the mean score of creativity in the master degree students was higher than that of the bachelor degree students. In addition, the creativity scores of both groups were ranked below the moderate level. In the Sadeghi et al's study, the fourth year nursing students had a higher score of creativity than the first year students.[20] The results of the Rogal and Young's (2008) study showed that the critical thinking skills of most masters nursing students was increased during their studies.[21] Knowledge gained by undergraduate nursing students is thought to have a short half-life. As a result, other students should be able to access this information and apply it in clinical settings. However, the activities of postgraduate students have come with a deeper knowledge and understanding. Perhaps the difference between the bachelor degree and master degree students of this study can be attributed to the effects of undergraduate education in developing creativity skills on tacit learning, career records, problem solving skills, decision making, participation in workshops, and clinical experience in the master degree students.

According to the findings of the present study, there was a direct and positive correlation between knowledge management and creativity in the students. The higher the level of knowledge management, the higher the student's creativity. In this study, the highest correlation was between knowledge management in the dimension of 'combination' and creativity in the bachelor degree students. In the master degree students, the highest correlation was between the dimensions of 'socialization' and creativity. It is believed that the use of knowledge management leads to the development of creativity and improvement of performance.[22,23] In another research, the effect of knowledge sharing on innovation was reported as there was a significant relationship between knowledge sharing and innovation.[24] In a study, knowledge acquisition strategies, knowledge transfer, and knowledge application and protection led to the development of staff performance.[25] The dynamic of mental factors play an important role in the production of knowledge, and nursing students need a creative and curious mind to develop knowledge. According to the results, knowledge management activates creativity among students, that influences the use of knowledge for problem solving and creativity, and the interaction of these variables develops performance and improves creativity. In the master degree students, the highest correlation was between the dimensions of 'socialization' and creativity. In the master degree students, the more the knowledge becomes available to all students, they are able to use it whenever and wherever it is needed, defined as moving from explicit individual knowledge to explicit group knowledge. Such knowledge is stored, the problem can be solved by the group and the resulting knowledge is more developed. However, to improve creativity, the master degree students use hidden knowledge transfer strategies and redistribute it to hidden knowledge, share their experiences and mental models to improve other students, have mutual understandings through face-to-face social interactions, share their thoughts through brain storming, practice, education and exchange of ideas.

The strengths of this study are that in previous studies, some aspects of knowledge management, such as saving knowledge and how to transfer hidden knowledge have been mentioned. Given that the Knowledge Management Model of Nonaka and Takeuchi considers all dimensions of knowledge management, universities and health centers authorities can use knowledge management as a conscious strategy for identifying knowledge, evaluating, organizing and

storing it to enhance students' and employees' creative community services at all levels. A limitation of this study was that the mental status of nursing students could have influenced their responses when completing the questionnaires, which was outside of the researcher's control. Also, not sufficient studies were available in the nursing literature on this topic. It is suggested that to create effective knowledge management and increase the creativity of bachelor and master degree nursing students, courses for familiarization with knowledge management and its dimensions are held. It is also suggested that this study is repeated with a larger sample and comparative studies in other public and private university institutes and health centers are conducted. It is also possible to compare the level of knowledge management and creativity of different universities for ranking universities in terms of the existence of these components.

Conclusion. The findings of this study showed that there was a direct and significant relationship between knowledge management and creativity in the bachelor and master degree students. While the mean scores of some aspects of knowledge management and the score of creativity were higher in the master degree students, the scores of both groups of students on the level of knowledge management were in a moderate level and in relation to creativity were lower than the average level. The requirement of educational environments is the existence of knowledge management, which makes the development of knowledge for all individuals at different levels and groups possible. Also, it helps with sharing and using classified learning. Therefore, more attention should be paid to all aspects of knowledge management in all levels to create an environment for students to address health challenges in the society. In such an environment, creativity, innovation, fertility of ideas and knowledge transfer will become possible.

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Original article

Validation of the Work Limitations Questionnaire in Brazilian Army military personnel

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Validation of the Work Limitations Questionnaire in Brazilian Army military personnel

Objective. To validate the Work Limitations Questionnaire (WLQ) to measure presenteeism in Brazilian military personnel. **Methods.** This is a test validation study conducted with 125 individuals of a military staff attending a Brazilian Army Unit. We applied a form with demographic and occupational variables and the WLQ, composed of 25 items. The construct validity was assed trough confirmatory factorial analysis. **Results.** We confirmed the interdependent structure of the WLQ´s domains for explaining the presenteeism of the sample in four domains: outcome demand, mental demand, physical demand and time management. Most of items showed factorial loads between 0.5 and 0.7 and the adjustment (absolute and incremental) and residues indexes demonstrated satisfactory values. The Alphas in domains ranged from 0.68 (output demand) to 0.79 (time management) in domains, evidencing reliability

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for the WLQ. **Conclusion**. We confirm the construct validity of the WLQ to assess presenteeism in Brazilian military staff.

Descriptors: occupational health; military personnel; validation studies; psychometrics

Validación del cuestionario de limitaciones en el trabajo en militares del ejército brasileño

Objetivo. Validar el Cuestionario de Limitaciones en el Trabajo (WLQ) para evaluar el presentismo en militares del ejército brasileño. **Métodos.** Se trata de un estudio de validación de pruebas conducido con 125 militares de una organización militar del Ejército Brasileño. Se aplicó un formulario para la caracterización sociodemográfica y funcional y el WLQ, compuesto por 25 ítems. La validez de constructo se evaluó mediante del análisis factorial confirmatorio. **Resultados.** Se confirmó la estructura interdependiente de los dominios para explicación del presentismo en el grupo de estudio en cuatro dominios: demanda de producción, demanda mental, demanda física y gerencia del tiempo. La mayoría de los ítems presentaron cargas factoriales entre 0.5 y 0.7 y los índices de ajuste (absolutos e incrementales) y de residuos tuvieron valores satisfactorios. La confiabilidad por dominio varió de 0.68 (demanda de producción), 0.73 (demanda física) y 0.79 (gerencia del tiempo), evidenciando confiabilidad del WLQ. **Conclusión.** El WLQ es un instrumento confiable y válido para evaluar el presentismo en militares del ejército brasileño.

Descriptores: Salud Laboral; Personal Militar; Estudios de Validación; Psicometría.

Validação do Questionário de Limitações no Trabalho em militares do Exército Brasileiro

Objetivo. Validar o Questionário de Limitações no trabalho (WLQ) para avaliar presenteísmo em militares do Exército Brasileiro. **Método.** Trata-se de uma pesquisa de validação de um teste realizada com 125 de militares de uma organização militar do Exército Brasileiro. Aplicaram-se um Formulário para caracterização sócio-demográfica e funcional e o WLQ, composto por 25 itens. A validade de constructo foi avaliada por meio de análise fatorial confirmatória. **Resultados.** Confirmou-se a estrutura interdependente dos domínios para explicar o presenteísmo na população de estudo em domínios: demanda de produção, demanda mental, demanda física e gerência do tempo. A maioria dos itens apresentou cargas fatoriais entre 0.5 e 0.7 e os índices de ajuste (absolutos e incrementais) e de resíduos apresentaram valores satisfatórios. Os Alfas por domínio variaram de 0.68 (demanda de produção) a 0.79 (gerência do tempo), evidenciando confiabilidade do WLQ. **Conclusão.** Confirmou-se a validade de constructo do WLQ para avaliar presenteísmo em militares do exército brasileiro.

Descritores: saúde do trabalhador; militares; estudos de validação; psicometria.

Introduction

Organizational trends in the field of occupational health, especially those focused on performance and productivity, have been frequently debated due to their consequent managerial, economic and legal repercussions in relation to the demands of the labor market.[1] From this, new concepts arise and have been studied in order to promote greater understanding of the work-health-disease relationship in the perspective of prevention of damages against the mismatches between demands and capacity for labor.

In this sense, presenteeism was created to describe the increasing propensity of workers to spend long hours in the work environment when they feared for their work.[2] Usually more accepted in investigations on occupational health, its concept describes the relationship between illness and productivity loss. Thus, despite the complaints and health problems, the worker is present in the workplace, but the performance of activities inherent to their functions occurs in an unproductive way.[3] Thus, two different behaviors are possible for the worker, namely: carrying out extensive workdays as a reflection of their commitment or a way of facing the continuous labor insecurity; as well as going to work while being sick and, because of their medical conditions, not being productive.[4]

The culture of presenteeism has been suggested from the different incidences found in distinct occupational groups, without the mediating collective mechanisms having been investigated.[5-8] In this logic, some occupations, such as the military, would be more prone to presentism, due in part to professional identity, ethical values and principles and specific characteristics such as hierarchy and permanent availability.[9] Moreover, it is possible that the level of identification with the work and its central role in life are crucial to the understanding of presenteeism in this population.[10] For this purpose, valid and reliable tools for measuring presenteeism are essential to diagnose this phenomenon in the organizational context and, consequently, to estimate the impact of diseases on workers' productivity. However, measuring presentism is a challenge because it is a non-palpable, apparently hidden condition that requires the recognition of the professional about his or her best and worst condition for the development of the activities at work. Also, direct measurement of productivity is a difficult task, especially in occupations whose institutional culture encompasses striking traits of professional identity. Therefore, depending on how the presenteeism is conceptualized and measured in the investigations, it has different implications to the health and well-being of the professionals.

From the health point of view, attention to presenteeism provides not only a means to verify the associated productivity losses, but also important connections between having a medical condition, defining oneself as a patient and the behaviors associated with returning to work admitting the condition

of being sick. In due course, the interest for performing this research by nurses is justified by the recent insertion and expansion of vacancies for these professionals within the scope of the Brazilian Army. Also, the increasing participation of this professional category in studies on health and psychosocial aspects of the work, which enable the identification of changes in this scope among the military staff, implies appropriate care and/or pertinent referrals. With the participation of nurses in military medical-hospital units where assistance is provided to their dependents and reservists, this benefit is extended to a significant portion of the civilian population.

In this context, although it is a relatively recent and complex-to-measure concept, there are already instruments to measure presenteeism applied in different realities,[11] such as the Work Limitations Questionnaire (WLQ)[12] and the Stanford Presenteeism Scale (SPS-6),[13] and both have been validated in Brazil.[14,15] Of these, the WLQ is the one whose psychometric properties have been most extensively tested to assess the impact of general health and specific conditions on individuals' productivity.[5] It was translated and validated for the Brazilian reality together with employees and graduate students for the evaluation of presenteeism from the measure of lost productivity associated with the interference of health problems in the performance of work activities.[14] From its validation, only one study including hospital nurses was performed and, through Cronbach's alpha, had its reliability attested, with values ranging from 0.78 to 0.90.[16] However, its validation for service people was not verified in the national and international literature. Moreover, this instrument had its validity analyzed almost ten years ago, a condition that can affect its stability (reliability) and validity, that is, its capacity to measure what it is proposed to measure.[17,18] In view of the above, the objective of this study was to validate the Work Limitations Questionnaire (WLQ) for this population.

In the field of nursing, specifically nursing work, the WLQ allows the identification of cases of presenteeism based on the productivity loss in the occupational space, which enables identifying the impact of the labor process on workers' health and the development of actions to minimize related causal factors. In order to expand the nurse's field of action, the validation of the WLQ for application in service people will allow these benefits to be extended to evaluate the work-health relationship in the context of the Brazilian Army.

Methods

This is a methodological research carried out with 125 service people from a military organization of the Brazilian Army of Porto Alegre (Brazil). Military members of the permanent staff of the said Military Organization were included, whose graduations consist of officers, lieutenants, sergeants, corporals and soldiers. The following exclusion criteria were defined: soldiers of variable staff (providing compulsory temporary service), service people in sick leave throughout the period of data collection or in leave by any reason. The research protocol was applied in October 2016 and was composed by the following self-filling instruments: sociodemographic and labor characterization form and Workplace Limitations Questionnaire (WLQ). The characterization form addressed the following sociodemographic variables: date of birth, sex, marital status and schooling level. The labor variables included training, reassignment information, daily working hours (considering the number of hours worked after the end of the workday), relationship to military service (temporary or career) and time of work in the Army.

The WLQ is an instrument composed of 25 items (Table 1) encompassing the multidimensional nature of the functions developed in the occupational environment, grouped into four domains of labor limitation: Time management, with five items (question 1) that deal with difficulties in complying schedules and tasks in due time; Physical demand, with six items (question 2) assessing the ability to perform tasks requiring body strength, endurance, movement,

coordination and flexibility; Mental-interpersonal demand, with nine items (questions 3 and 4) assessing the difficulty in performing cognitive tasks at work and interacting with people at work; and Output Demand, with five items (question 5) referring to decreased ability to achieve, in a timely manner, the quantity and quality of completed work.[14]

Table 1. Items that make up the WLQ. Porto Alegre, 2016.

Question
1. In the past 2 weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following?
WLQ1a: handle the workload
WLQ1b: prepare to leave easily at the beginning of a working day
WLQ1c: start on you job as soon as you arrived at work
WLQ1d: do your work without stopping to take breaks or rests
WLQ1e: stick to a routine or schedule
2. In the past 2 weeks, how much of the time were you able to...
WLQ2a: ...walk or move around different work locations (for example, go to meetings) without difficulty caused by physical health or emotional problems?
WLQ2b: ...lift, carry and move objects with more than 5 kilos, without difficulty caused by physical health or emotional problems?
WLQ2c: ...sit, stand, or stay in one position for longer than 15 minutes while working, without difficulty caused by physical health or emotional problems?
WLQ2d: ... repeat the same motions over and over again while working, without difficulty caused by physical health or emotional problems?
WLQ2e: ... tilt, turn, or stretch to reach objects at work, without difficulty caused by physical health or emotional problems?
WLQ2f: ...use hand-held tools or equipment (for example, a phone, pen, keyboard, computer mouse, drill, hairdryer or sander) without difficulty caused by physical health or emotional problems?
3. In the past 2 weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following?
WLQ3a: work thinking only at work
WLQ3b: think clearly while at work
WLQ3c: do the work carefully
WLQ3d: concentrate on your work
WLQ3e: think without losing the thread when you are working
WLQ3f: read or see easily at work
4. In the past 2 weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following?
WLQ4a: speak with people in-person, in meeting or on the phone
WLQ4b: control your temper in front of people at work
WLQ4c: help others complete tasks
5. In the past 2 weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following?
WLQ5a: handle the workload
WLQ5b: work fast enough
WLQ5c: finish work on time
WLQ5d: do your work without making mistakes
WLQ5e: feel that you have done what you can do

Each scale has a score ranging from 0 (limited none of the time) to 100 (limited all of the time). The score indicates the percentage of time, in the past 2 weeks, that the individual was limited to perform their tasks at work. Thus, if the score in the interpersonal-mental demand scale is 30, it means that the individual was limited in 30% of the time destined for the development of this type of task. After calculating all the scales, we can define the WLQ index, which represents a percentage of reduction in productivity when compared to a healthy individual.

For the storage and organization of information, a database was built in an Excel program (Office 2010) spreadsheet, where the sociodemographic variables and the items composing the instrument were inserted. In addition, for the quality control of the data, the data was double typed by two independent typists. After the construction of the database, the data were analyzed in the Statistical Package for Social Sciences program (SPSS, version 10.0) and in the AMOS complement of the same software, used for confirmatory factor analyzes. Pearson's correlations were used to evaluate the interdependence of factors in explaining presenteeism. The factorial loads allowed us to analyze the contribution of the items to their respective factors. The Cronbach's alpha was used to analyze the reliability of the WLA from the evaluation of its internal consistency.

We considered the recommendation to use at least one absolute and one incremental adjustment indicator, in addition to the $\chi 2$ and the Degree of Freedom (DF), as well as a poor quality fit index (residue).[19] Thus, the absolute measures used were $\chi 2$ (Fit=>0.05), normalized $\chi 2$ (Fit=<3.0), based on DF; Quality of Fit Index (QFI) (Fit=>0.95). The following incremental indicators were used: Comparative Fit Index (CFI) (Fit=>0.92) and Tucker Lewis Index (TLI) (Fit=>0.92).(19) As a measure of poor quality of fit, the following stand out: Root of the Mean Square Error of Approximation (RMSEA) (Fit=r<0.08 considering CFI>0.92) and Standardized Root Mean Residue (SRMR) (Fit=r<0.09 considering CFI>0.92).(19) Also, the variance inflation factor was used to confirm the presence of collinearity (VIF> 10). The ethical precepts, provided for in Resolution 466/12 of the National Health Council, were respected in the conduction of this research, and the project received approval by CEP/UFRGS under No. 1.679.372, Approval Certificate No. 57814616.5.0000.5347. It should be noted that, after exposure of the study objectives, all individuals who accepted to participate in the study signed the Informed Consent Form before receiving the research protocol.

Results

Of the 150 service people eligible for the survey, four were on sick leave and 21 were withdrawn for involvement in duties outside barracks throughout the data collection period. Thus, we had access to a population of 125 service people (24 officers and 101 soldiers), whose sociodemographic and functional characterization is presented in Table 2.

Table 2. Sociodemographic and functional characterization of the 125 service people. Porto Alegre, 2016

Variable	*n*	%	Mean (SD)	Median	Minimum-Maximum
Age	125		27.9 (8.6)	24.00	18-53
Sex					
Female	10	8			
Male	115	92			
Marital status					
Married/partner	87	69.6			
Single	33	26.4			
Divorced/separated	5	4			
Schooling					
Primary education	8	6.4			
Secondary education	74	59.2			
Higher education	32	25.6			
Graduation	11	8.8			
Time of work in the Army			7.96 (8.59)	5	1-34
Relationship					
Temporary	72	57.6			
Career	53	42.4			
Workload			8.12(0.82)	8	4.5-14
Extra hours	67	53.6	0.88 (1.14)	1	0-6
No reassignment	92	73.6			

Since the hypotheses to be tested have theoretical basis and were supported by previous empirical analyzes in similar populations, the confirmation of the factorial structures in the constructs could be established with the techniques of confirmatory factorial analysis. In Figure 1, we present the results obtained in the confirmatory factor analysis of the measurement model of the Work Limitations Questionnaire (WLQ).

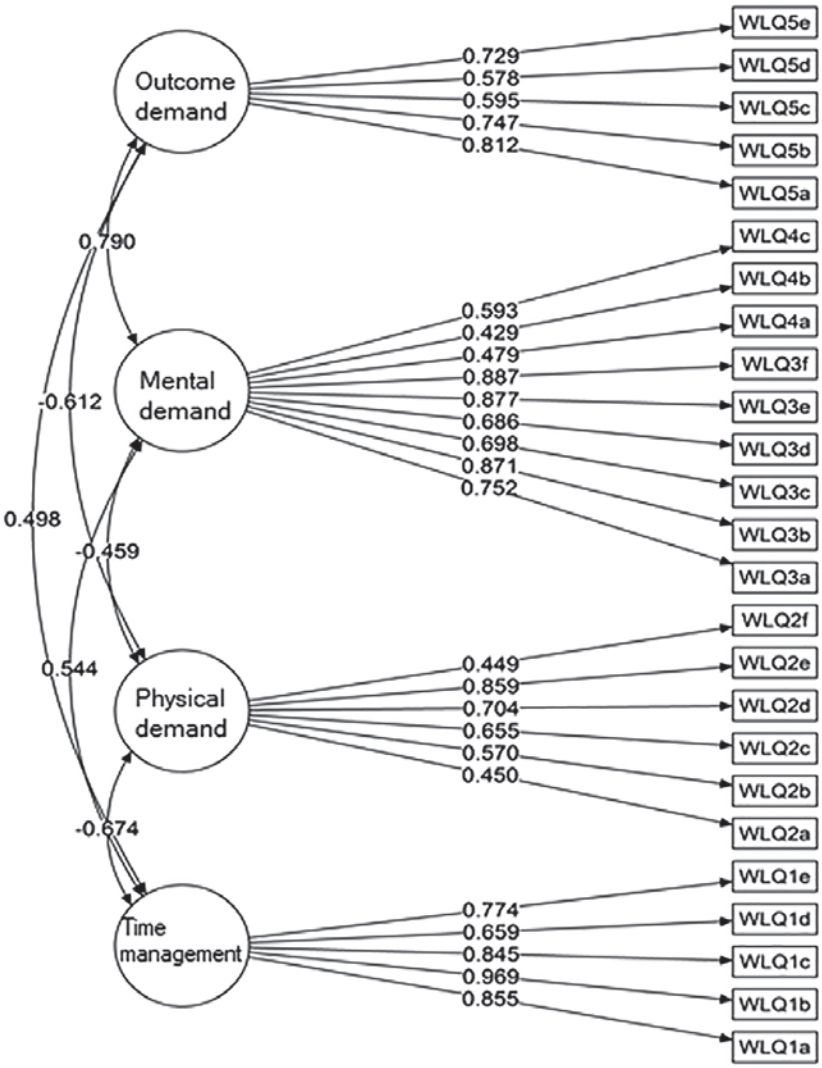

Figure 1. Model of the Measurement of the Work Limitations Questionnaire (WLQ). Porto Alegre, 2016

Satisfactory correlations were verified, although with values just above or below the defined limit, confirming the interdependent structure of domains for the explanation of presenteeism in this population. As for factor loads, most of the items presented satisfactory values, according to the cut-off point established (between 0.4 and 0.7). The items WLQ1a (Time Management); WLQ2e (Physical Demand); as well as WLQ3b, WLQ3e and WLQ3f (Mental Demand) presented values above 0.85. However, the VIF values found did not confirm collinearity of these items, as follows: 3.444 (WLQ3b), 4.158 (WLQ3e), 3.815 (WLQ3f), 2.870 (WLQ2e) and 1.740 (WLQ1a).

Cronbach's alpha was 0.79 for the Time Management domain, 0.73 for Physical Demand, 0.78 for Mental Demand, 0.68 for Outcome Demand, and 0.89 for all 25 items

of the instrument, showing satisfactory internal consistency to the instrument. Although some alpha values were slightly below and factorial loads slightly above expectations, considering the fit indices obtained for the factorial structure (Table 3), no items were excluded from the scale.

Table 3. Fit indexes and poor quality of fit obtained for the WLQ. Porto Alegre, 2016

	Observed Values	Expected Values
Absolute Measures		
$\chi 2$	643.811	>0.05
DF	269	-
Normalized $\chi 2$ ($\chi 2$/DF)	2.393	<3.0
P-value	0.000	<0.05
QFI	0.962	>0.95
Incremental Measures		
CFI	0.941	>0.92
TLI	0.935	>0.92
Poor Quality Fit		
RMSEA	0.106	r<0.08
WRMR	1.047	r<1.00

The values found for the absolute and incremental measurements were satisfactory. The indexes of poor quality of fit were slightly above expectations. However, given the presence of residues (difference between observed and expected values) within an acceptable limit and the adequacy of the data in the other indicators, no changes were made. Thus, the construct validity of the Work Limitations Questionnaire was validated to evaluate presentism in service people of the Brazilian Army.

Discussion

Until the 1970s, researchers used exploratory factor analysis techniques to achieve both exploratory and confirmatory objectives. Nowadays, the new techniques of confirmatory factorial analysis can reach the same objectives when reproducing the factorial structure and confirm a theory.[20] In this sense, the factorial analysis tested and confirmed the fit of the WLQ structure previously defined in the literature in empirical studies.[14] This phase is of utmost importance since it allowed validating the operational structure used to measure the constructs, also achieving satisfactory reliability, evaluated by the alpha statistics.

In its translated version and adapted culturally to Brazil, the WLQ was submitted to test-retest psychometric evaluation (intraclass correlation coefficient between 0.600 and 0.800) and internal consistency analysis (Cronbach's alpha between 0.808 and 0.904).[14] The test-retest validation of the original scale indicated four domains, whose items presented corrected item-total correlations between 0.53 and 0.83. The Cronbach alphas found varied from 0.88 to 0.91, attesting reliability to the instrument.[12] In a detailed analysis of the parameters used to evaluate the internal structure of the WLQ in this research, we found that the factorial loads, which provide indication on the contribution of the variable to explain the construct, presented satisfactory values. This indicates that the structural factorial of the instrument satisfactorily represents the existing theoretical model and, therefore, is operationally

capable of measuring the presenteeism in service people of the Brazilian Army.

The variation found in the loads can be justified by the population *n* in question and by the possible homogeneity in their characteristics, which affects the total variance. Also, in unifactorial instruments, due to their expected convergence of items, there may be multicollinearities, expressed by high factorial loads. The signs of potential collinearity, considered by the values found above 0.70, when submitted to VIF were not confirmed. Therefore, although these variables present a common variance above that desired, this interaction is not enough for them to measure the same face of the phenomenon. In this sense, it must be considered that it may be difficult to obtain satisfactory indexes in confirmatory factorial solutions when non-normal distributions occur along with other breaches of assumptions, such as lack of independence between variables, measurement errors and an insufficient number of people in the sample.[20]

In the analysis of the quality of fit through the absolute, incremental and poor quality measures, the adequacy of these quality fit indexes was verified. However, slightly increased RMSEA/WRMR values indicated the presence of residues, that is, differences between the values obtained in the observed and expected matrix. The higher this value, the more distinct are the models obtained with the empirical data in relation to that hypothesized by the researcher. Despite these changes in the residue indicators, when considering all the items, the satisfactory results in the absolute and incremental indicators and that the measures of residues are only a few tenths above the cut-off value, no WLQ items were excluded. Also, the researchers considered the retention or exclusion of items. Considering that they often contain essential information to evaluate the construct, small variations can be considered. It is known that the Confirmatory Factor Analysis contributes to the process of review and refinement of psychological instruments and their factorial structures. Therefore, future applications of this method should be encouraged, especially if there is interest in possible modifications in the current internal structure of the WLQ or to investigate the invariance of the current structure between different groups or samples.

Conclusion. It was verified that the internal structure of the WLQ presents construct validity and satisfactory reliability for application in military staff of the Brazilian Army in order to measure presenteeism. This phenomenon is a potential catalyst for theoretical advances in occupational health, since it allows addressing the obscure areas between non-productivity (absenteeism) and excellence in the exercise of tasks at work. From the adequacy in the measurement systems, it is important to carry out investigations that evaluate the relationship of this construct to contextual and psychosocial characteristics in workers of different occupations, and especially among the military staff of the Brazilian Army. Thus, it will enable us to know its effects on organizational instances; to understand the real consequences of this type of activity on service people's health; and to develop preventive measures, stimulate the development of resilient characteristics and improve existing treatment methods. In the field of nursing, a specific version of the WLQ for military personnel will allow the identification of cases of presenteeism in the context of the Brazilian Army, allowing the nurse, especially the occupational nurse, to plan and implement the nursing process more effectively in this population, based on the causal factors related to the productivity loss at work, thus promoting occupational health and enabling managers to review the work processes in the military field. In this context, health benefits are expected for individuals exposed to adverse and/or potentially traumatic situations that pervade the military scope.

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Factors Associated with Not Drinking Alcoholic Beverages in Dependent Individuals on Recovery

Original article

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Factors Associated to Not Drinking Alcoholic Beverages in Dependent Individuals on Recovery

Objective. This work sought to determine the association between personal factors and not drinking alcoholic beverages in alcohol-dependent individuals on recovery process. **Methods.** This was a cross-sectional quantitative study. The sample was comprised by 119 adult belonging to 50 Alcoholics Anonymous groups in Saltillo, Coahuila (Mexico). The sampling was simple random, by conglomerates (AA groups). To gather the information, a Personal Data Card was used along with a history on alcohol consumption and the instruments Scale on Social Readjustment Classification, Spiritual Perspective Scale, Schwartz Values Survey, and the Alcohol Use Disorders Identification Test (AUDIT). **Results.** The time without alcohol consumption was related positively with age (r=0.59) and spirituality (r=0.29) and negatively with stressful events (r=-0.31). The Multiple Linear Regression

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Model explained 32.5% of the variance, with age being the variable remaining in the model and which affected not drinking alcoholic beverages. **Conclusion.** Values and spirituality favor not drinking alcoholic beverages in individuals in the process of recovering from the dependence, while exposure to stressful events increases vulnerability to alcohol consumption.

Descriptors: alcoholics anonymous; linear models; social values; alcohol drinking; surveys and questionnaires.

Factores Asociados al No Consumo de Alcohol en Personas Dependientes en Recuperación

Objetivo. Determinar la asociación entre los factores personales y el no consumo de alcohol en personas dependientes en proceso de recuperación. **Métodos.** Estudio cuantitativo, de corte transversal. La población estuvo conformada por 119 adultos pertenecientes a los 50 grupos de Alcohólicos Anónimos de Saltillo, Coahuila (México). El muestreo fue aleatorio simple, por conglomerados (grupos AA). Para la recolección de la información se utilizó una Cédula de Datos Personales e Historial de Consumo de Alcohol y los instrumentos Escala de Clasificación de Reajuste Social, Escala de Perspectiva Espiritual, Cuestionario de Valores Schwarts y Cuestionario de Identificación de los Trastornos debidos al Consumo Alcohol (AUDIT). **Resultados.** El tiempo sin consumo de alcohol se relacionó en forma positiva con la edad (r=0.59) y con la espiritualidad (r=0.29) y en forma negativa con los eventos estresantes (r=-0.31). El Modelo de Regresión Lineal Múltiple explicó el 32.5% de la varianza, siendo la edad la variable que se mantuvo en el modelo y tuvo efecto sobre el no consumo de alcohol. **Conclusión.** Los valores y la espiritualidad favorecen el no consumo de alcohol en las personas en proceso de

recuperación de su dependencia, mientras que la exposición a eventos estresantes aumenta la vulnerabilidad al consumo.

Descriptores: alcohólicos anónimos; espiritualidad, modelos lineales; valores sociales; consumo de bebidas alcohólicas; encuestas y cuestionarios.

Fatores Associados ao Não Consumo de Álcool em Pessoas Dependentes em Recuperação

Objetivo. Determinar a associação entre os fatores pessoais e o não consumo de álcool em pessoas dependentes de álcool em processo de recuperação. **Métodos.** Estudo quantitativo, de corte transversal. A amostra esteve conformada por 119 adultos pertencentes aos 50 grupos de Alcoólicos Anônimos de Saltillo, Coahuila (México). A amostragem foi aleatória simples, por conglomerados (grupos AA). Para a recolecção da informação se utilizou uma Cédula de Dados Pessoais e Historial de Consumo de Álcool e os instrumentos Escala de Classificação de Reajuste Social, Escala de Perspectiva Espiritual, Questionário de Valores Schwarts e Questionário de Identificação dos Transtornos devidos ao Consumo Álcool (AUDIT). **Resultados.** O tempo sem consumo de álcool se relacionou em forma positiva com a idade (r=0.59) e com a espiritualidade (r=0.29) e em forma negativa com os eventos estressantes (r=-0.31). O Modelo de Regressão Lineal Múltiplo explicou 32.5% da variação, sendo a idade a variável que se manteve no modelo e teve efeito sobre o não consumo de álcool. **Conclusão.** Os valores e a espiritualidade favorecem o não consumo de álcool nas pessoas em processo de recuperação da dependência, enquanto que a exposição a eventos estressantes aumenta a vulnerabilidade ao consumo.

Descritores: alcoólicos anônimos; espiritualidade; modelos lineares; valores sociais; consumo de bebidas alcoólicas; inquéritos e questionários.

Introduction

Alcohol consumption causes serious repercussions for public health, given that it occupies the third place among the risk factors for falling ill. Harmful alcohol consumption is responsible for the deaths of 3.3-million people annually and for 5.1% of diseases and lesions globally.[1] According to the National Survey on the Consumption of Drugs, Alcohol, and Tobacco 2016-2017,[2] alcohol consumption in Mexico is considered the first risk factor for the development of over 64 diseases and it is responsible for 6.5% of premature deaths. Additionally, reports indicate that 71% of the Mexican population has consumed alcohol at some point of their lives, of which 2.2% developed alcohol dependence.[2]

Alcohol dependence and the limitations during the recovery process may be related with multiple personal, interpersonal, and environmental risk factors.[3] Among the personal factors, stressful events in life are highlighted,[4] having the potential to trigger the consumption of substances, among them alcohol. Furthermore, these vary in severity and are perceived by individuals according to the type of life experience; based on this, the events can be considered by individuals as positive or negative.[5] A factor highly related to not drinking alcoholic beverages,[1] which is defined as the intake of alcoholic beverages and with recovery from dependence is spirituality.[6-8] Spirituality is defined as the personal perspective and behaviors that express the sense of belonging to a transcendent dimension or something bigger than oneself.[9] In this sense, evidence shows that not drinking alcohol is related with spirituality[6-8] and religious practices.[10,11]

Other factors associated with abstinence are some personal factors, among them stimulation, hedonism, pleasure, social power, being daring, and enjoying life are related with excessive drinking of alcohol, while other factors, like national security, internal harmony, equality, union with nature, being loyal, healthy, clean, and helping are shown as protectors of alcohol consumption.[12,13] Some personal factors have been related with dependent consumption of alcohol: early onset of consumption is associated with abuse at later ages,[14-16] greater consumption exists in men than in women;[2] likewise, greater consumption is observed in low socioeconomic levels[17] and those with low educational levels.[17] Based on the aforementioned, the need becomes evident to study from the nursing perspective the phenomenon of recovering from alcohol dependence and achieving abstinence or sobriety. It is considered a relevant area of nursing intervention focused on supporting the recovery process and, thus, contributing to the individual's wellbeing. According to the literature review, studies are insufficient on the phenomenon of alcohol dependence, as well as the recovery and maintenance of abstinence or sobriety by nursing professionals.[12-16]

Due to the aforementioned, the purpose of this study was to determine the association of the personal factors (age, stressful events, spirituality, and

values) and not drinking alcoholic beverages (number of days without consumption) in alcohol-dependent individuals on recovery process from the city of Saltillo, Coahuila (Mexico).

Methodology

This was a cross-sectional, descriptive study of quantitative approach conducted in 2018. The population was comprised by 498 members of the AA program in the city of Saltillo, Mexico. Simple random sampling through conglomerate was carried out (20 groups from the AA program), group selection was through the table of random numbers; of the participants selected principally, six did not wish to participate, mentioning the following reasons: lack of time ($n=4$) and not interested in participating ($n=2$). A sample was calculated for a linear regression test with correlation coefficient, $r^2=0.652$[6] with 95% CI, with an estimation limit of 0.04, power of 90% and considering a 5% rate of non-response. Sample size was 119 adults belonging to the AA program.

To gather information, the following were used: a) Personal Data Card and History of Alcohol consumption (CDPHCA, for the term in Spanish) and four instruments. The CDPHCA was divided into three sections, *i.e.*, personal data, history of alcohol consumption, and prevalence of alcohol consumption. b) The Scale of Social Readjustment Classification (ECRS, for the term in Spanish) has a classification that indicates the degree of stress or social readjustment necessary when it occurs and ranges from 100 for the most stressful event to 11 for the least stressful and the values of each event occurring during a year will be added; in case an of an event having occurred more than once in the last year, the value is multiplied by the number of occurrences,[18] was validated for the Mexican population.[19] c) The Spiritual Perspective Scale (SPS) developed and translated into Spanish by Reed,[9] measures knowledge of oneself, to a sense of connection with a being of superior nature or to the existence of a supreme purpose. This instrument has a subscale denominated spiritual practices (1 to 4) and another subscale denominated spiritual beliefs (from 5 to 10); both are scored in a range from 1 to 6, for a total score of 24 for the first subscale and 36 for the second. Indices were obtained from each subscale and from the scale in general, where higher scores indicate a higher spirituality index. d) The Schwartz Value Survey[20] measures 56 values, stemming from 10 dimensions; each item is valued as not important, moderately important, and very important. Indices were obtained for each subscale and from the questionnaire in general, where higher scores indicate higher index of values. e) The Alcohol Use Disorders Identification Test (AUDIT) with results ranging from 0 to 40 points; the score from 1 to 3 points is considered sensible consumption (without risk); the result from 4 to 7 points is considered dependent consumption (of risk), and the report of 8 or more points is considered damaging consumption (harmful).[21]

This study was approved by the Commission on Research Ethics. Each of the AA centers selected were visited to request authorization from each group and to explain to its members the object of the study. Thereafter, a second visit was made on the date and hour assigned by the AA group, and those who accepted participation were given the informed consent, thereafter, in a sealed envelope, the instruments were provided and the questionnaires were filled out, indicating that the research was confidential in nature and that the information was provided anonymously. Descriptive and inferential statistics were used to analyze the data. Descriptive analysis of the continuous and categorical variables was performed through frequencies, proportions, and central tendency and variability measures, as well as inferential statistics for the objectives. The Kolmogorov-Smirnov goodness-of-fit test was conducted with Lilliefors correction to determine the distribution of the continuous variables. Given that the study variables (indices of stressful events, spirituality, values, and alcohol consumption) did not show normality, the Spearman Correlation Coefficient test was used along with a simple linear regression model with bootstrap, which

considered age, gender, schooling, and indices of stressful events, spirituality and values as independent variables and not drinking alcoholic beverages (number of days without consumption) as dependent variable.

Results

This study had the participation of 119 adults belonging to AA groups. Regarding sociodemographic data, 86.6% were males, 43.7% were married, 26.9% had attended school to secondary level, most worked (69.7%), and 73.9% were Catholics. The mean age of onset of alcohol consumption in the participants was 16.4 years; 37.8% had consumed alcohol during the last year, the average number of beverages drunk was 17.9 beverages per consumption occasion. With respect to age when entering AA, the average was 32.9 years, the average for relapses was 2.22 and the mean number of years participating in the program was 18.05 years (Table 1). Table 2 shows that nearly one in every two individuals has had stressful events, pray in private or meditate more or less once a day, and spiritual beliefs are an important part of their lives. The principal value for this group was to be physically and mentally healthy (65.5%) and the least important was to be influential (44.4%).

The following shows the data responding to the study purpose. Positive relation was found between number of days of not drinking alcoholic beverages and age (r^s=0.596, p<0.001) and spirituality (r^s=0.289, p<0.001); negative relation was also found with stressful events (r^s=-0.315, p<0.001). Schooling was not significantly related (r^s=-0.052, p=0.571) nor values (r^s=-0.052, p=0.571) with days of abstinence. Likewise, positive and significant relation was found of spirituality with age (r^s=0.214, p=0.02), schooling in years of studying (r^s=0.372, p<0.001), age on admission to the AA program (r^s=0.237, p=0.009) and the index of values (r^s=0.273, p=0.003) and negative and significant relation of spirituality with number of relapses (r=-0.296, p<0.001) and with the AUDIT index (r^s=-0.300, p<0.001). The multiple linear regression model was significant ($F_{[6,118]}$=10.44, p<0.001) and explained 32.5% of the variance. The variable which finally remained in the model and which had an effect on not drinking alcoholic beverages was age, indicating that the number of days without drinking alcohol in AA participants is explained by the age (standardized Beta=0.047, t=-1.78, p=0.001).

Discussion

The purpose of this study was to determine the association of personal factors (age, gender, schooling, stressful events, spirituality, and values) and not drinking alcoholic beverages (amount of days without consumption) in alcohol-dependent individuals in recovery process. It was found that the factors identified in alcohol-dependent individuals in recovery process (members of AA groups) who showed a relation with not drinking alcoholic beverages were age, spirituality, and stressful events. Likewise, the factor showing and maintaining a significant effect with not drinking alcoholic beverages was participant age. Age, as a factor associated to not drinking alcoholic beverages, showed that the higher age reported by participants, indicated a greater number of days reported without alcohol consumption. These results differ from that found in the literature, while age increases, there is a greater probability of excessive or dependent alcohol consumption;[22,23] a possible explanation for this is that studies have been conducted in different populations, added to the fact that individuals in the recovery process have received guidance, companionship, and abilities to reject alcohol consumption.[4]

In relation to spirituality, it was found that engaging in greater spiritual practices, like praying in private or meditating, increases the number of days without alcohol consumption. This agrees with the literature, given that it mentions that this is an important and useful factor in the long-term recovery success of AA members, by showing that

Table 1. General characteristics of the 119 individuals in the process of recovering from alcohol dependence

Sociodemographic	*n* (%)	Mean ±SD
Characteristics		
Gender		
Male	103 (86.6)	
Female	16 (13.4)	
Age		46.1±15.3
Marital status		
Single	34 (28.6)	
Married	52 (43.7)	
Widow (er)	11 (9.2)	
Divorced	11 (9.2)	
Common-law	11 (9.2)	
Schooling		
Primary	26 (21.8)	
Secondary	32 (26.9)	
High School	18 (15.1)	
Technical	15 (12.6)	
Professional	23 (19.3)	
Graduate	5 (4.2)	
Religion		
Catholic	88 (73.9)	
Christian	21 (17.6)	
Other	3 (5.9)	
None		
Occupation		
Employed	89 (69.7)	
Studies	8 (6.7)	
Studies and works	5 (4.2)	
Does not study or work	7 (5.9)	
Retired	6 (13.4)	
Antecedents of alcohol consumption		
Age started		16.4±3.7
Alcohol consumption		
Sometime during their lives	119 (100)	
Last year	45 (37.8)	
Last month	18 (15.1)	
Last week	5 (4.2)	
Membership to Alcoholics Anonymous		
Age of admission		32.9±11.04
Years of participation		18.05±11.42
Average of relapses		2.22±3.4

Table 2. Stressful events, spirituality, and values of the 119 people in the process of recovering from alcohol dependence

Characteristics	*n* (%)	Mean ±DS
Stressful events		28.8±19.6
Changes in personal habits	59 (49.6)	
Change in social activities	58 (48.7)	
Difficulties sleeping	58 (48.7)	
Spirituality		64.1±15.0
Spiritual practices		
Pray in private or meditate more or less once a day	50 (42)	
Spiritual beliefs		
Are an important part of their lives	49 (41.2)	
Values		64.1±15.0
Most important: being physically and mentally healthy	78 (65.5)	
Least important: being influential	53 (44.4)	

step 11 of the program ("Sought through prayer and meditation to improve our conscious contact with God as we understood Him, praying only for knowledge of His will for us and the power to carry that out") is related with the duration of the soberness of individuals with alcohol dependence who are in a recovery process.[10-12,24]

Stressful events, like changes in personal habits and in social activities, as well as difficulties sleeping showed a negative relationship with days of not drinking alcoholic beverages. A possible explanation is that stressful events have the potential of causing stress and triggering risk behaviors, like alcohol consumption; nevertheless, emotional, cognitive, or behavioral responses produced as consequence of the stressful events depend on the cognitive evaluation performed by the individuals of their personal characteristics and of the modulating variables.[7,25] These results reveal the possible need to manage emotions in participants from AA. Another possible explanation can be that the alcohol-dependent individual is still not prepared for healthy coping, has not completed the AA 12-step program, or has not reached the stage to share the message and it may be difficult for them to face positively the stressful events that can be experimented.[8,25] Finally, it was shown that the factor contributing most to the explanation, showing and maintaining an effect on not drinking alcoholic beverages was participant age, which demonstrates the effectiveness of the AA program, given that people who receive guidance, companionship, and abilities through the program remain sober a greater number of days.

In this sense, it may be concluded that values and spirituality are indispensable tools to favor not drinking alcoholic beverages in people in the process of recovering from alcohol dependence and, in turn, act as personal factors that can favor not drinking alcoholic beverages or sensible consumption in other populations. On the contrary, stressful events are occurrences that place alcohol-dependent individuals in a state of vulnerability to alcohol consumption. Finally, it is considered necessary for nursing professionals to include tools from the AA program, like spirituality and values, to the holistic nursing care provided to alcohol-dependent individuals by virtue of the results observed.

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Factors Associated to the Cicatrization Success of Lower-Limb Ulcer of Venous Etiology

Original article

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Factors Associated to the Cicatrization Success of Lower-Limb Ulcer of Venous Etiology

Objective. The study sought to establish the relationship among the sociodemographic and clinical factors with cicatrization success in patients with lower-extremity ulcers of venous etiology (UVE). **Methods.** Multi-center, prospective cohort study with participation of 80 patients with UVE assessed in three clinics from the city of Medellín (Colombia). Sociodemographic conditions were characterized and the clinical characteristics of the wounds evaluated with the Resvech 2.0 scale. **Results.** The work showed that 48.7% of the patients (52.5% of the women and 38.1% of the men) had cicatrization success of the lesion during a maximum time of 90 days. The Cox proportional risk model showed that cicatrization time was higher in patients belonging to low socioeconomic level (HR = 2.0), with lesions of greater compromise (HR = 2.7), and who were treated by nurses with experience <5 years (HR = 2.1). **Conclusion.** The factors associated with

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cicatrization success of ulcers of venous etiology are: belonging to socioeconomic levels above two (on a scale from 1 to 6), with a slight lesion, and the nursing staff treating the patient having five or more years of experience in the treatment of wounds. Promotion should take place for nurses to be trained on these themes and on improving their expertise, given that this is a factor that can be modified and which indicates the success of the cicatrization of these lesions.

Descriptors: varicose ulcer; risk factors; prospective studies; wound healing; survival analysis; nursing care.

Factores asociados al éxito de la cicatrización de úlceras de la extremidad inferior de etiología venosa

Objetivo. Establecer la relación entre los factores sociodemográficos y clínicos con el éxito en la cicatrización en pacientes con úlceras de la extremidad inferior de etiología venosa (UEV). **Métodos.** Estudio de cohorte prospectivo, multicéntrico con participación de 80 pacientes con UEV, evaluados en tres clínicas de la ciudad de Medellín (Colombia). Se caracterizaron las condiciones sociodemográficas y se evaluaron las características clínicas de las heridas con la escala Resvech 2.0. **Resultados.** El 48.7% de los pacientes (52.5% de las mujeres y el 38.1% de los hombres) tuvieron éxito en la cicatrización de la lesión en un tiempo máximo de 90 días. El modelo de riesgos proporcionales de Cox mostró que el tiempo de cicatrización era mayor en los pacientes pertenecientes a estrato socioeconómico bajo (HR=2.0), con lesiones de mayor compromiso (HR=2.7) y quienes fueron tratados por enfermeros con experiencia menor de 5 años (HR=2.1). **Conclusión.** Los factores asociados al éxito en la cicatrización de las úlceras de etiología venosa son: pertenecer a estratos socioeconómico mayor de dos, que la lesión sea leve y que el personal de enfermería que trata al paciente tenga cinco y más años de experiencia en tratamiento de heridas. Debe promoverse la capacitación de enfermeras en estos

temas y la mejoría de la experticia, por ser este un factor que puede ser modificable y que apunta al éxito de la cicatrización de estas lesiones.

Descriptores: úlcera varicosa, factores de riesgo, estudios prospectivos; cicatrización de heridas; análisis de supervivencia, atención de enfermería.

Fatores associados ao sucesso da cicatrização das úlcera do membro inferior de etiologia venosa

Objetivo. Estabelecer a relação entre os fatores sócio-demográficos e clínicos com o sucesso na cicatrização em pacientes com úlcera do membro inferior de etiologia venosa. **Métodos.** Estudo de coorte prospectivo, multicêntrico com participação de 80 pacientes com UV, avaliados em três clínicas de feridas da cidade de Medellín (Colômbia). Se caracterizaram as condições sócio-demográficas e se avaliaram no tempo as características clínicas das feridas com a escala Resvech 2.0. **Resultados.** 48.7% dos pacientes (52.5% das mulheres e 38.1% dos homens) tiveram sucesso na cicatrização da lesão em um tempo máximo de 90 dias. O modelo de riscos proporcionais de Cox mostrou que o tempo de cicatrização era maior nos pacientes pertencentes a baixo estrato socioeconómico (HR=2.0), com lesões com maior compromisso (HR=2.7) e que foram tratados por enfermeiros com experiência menor de 5 anos (HR=2.1). **Conclusão.** Os fatores associados ao sucesso na cicatrização das úlceras de etiologia venosa são pertencer a estratos socioeconómico maior a dois, que a lesão seja leve e que a enfermeira que trata ao paciente tenha 5 ou mais anos de experiência. Deve promover-se a capacitação de enfermeiras nestes temas e na melhora da experiência, por ser este um fator que pode ser modificável e que aponta ao sucesso da cicatrização destas lesões.

Descritores: úlcera varicosa; fatores de risco; estudos prospectivos; cicatrização; análise de sobrevida; cuidados de enfermagem.

Introduction

Lower-limb ulcer of venous etiology (UVE) is a chronic disease evidenced by trophic lesions of the skin and the subcutaneous cell tissue, originated as consequence of the endogenous affection induced and maintained by high venous pressure. It is of frequent appearance, with preference for the elderly and occurs much more than that of ischemic or neuropathic type. It is defined as "a solution of cutaneous coverage continuity with loss of substance, which exposes the underlying tissues to a variable depth, related etiologically with a venous pathology determinant of ambulatory hypertension in the lower limbs, with scarce tendency to spontaneous cicatrization, chronic evolution, and high tendency to recurrence".[1] The UVE can be varicose, postphlebitic or post-thrombotic or through combination of these,[2] localized generally below the knee, almost always perimalleolar. The lesion denotes histological and structural changes of the vascular and lymphatic wall. These modifications produce physiological alterations, like capillary leak, fibrin deposition, sequestration of leukocytes and erythrocytes, thrombocytosis, and inflammation, which harms oxygenation of the skin and nearby tissue, favoring tissue hypoxia.[3]

Care of patients suffering from UVE requires an evaluation and specialized treatment and, on occasion, interdisciplinary due to the multi-causal origin, manifestations on skin, cardiovascular compromise, magnitude and consequence of the damage. Besides the bodily affection, it compromises the quality of life of those who suffer it in the emotional, spiritual, social, and aesthetic dimensions,[4] specifically due to issues associated to constant pain, deterioration of the bodily image, isolation, and difficulty in performing daily living activities. Furthermore, no care or deficient approach generate increased costs due to loss of working capacity, constant institutional readmissions, and high expenditures of health resources, in addition to the possible recurrence if efficient measures are not interposed.

Diverse risk factors have been described that favor the appearance of the wound; among them, those inherent to the physiopathology.[5-7] Fukaya and Margolis[8] consider, among others, immobility, obesity, rigidity of the ankle and deterioration of the calf muscle pump, which facilitate the appearance of varicose veins compromising blood irrigation systems. Some authors[9] hold that the most common factors are advanced age, family background of venous disease, increased body mass index, smoking, antecedents of traumatism, and prior venous thrombosis; they have also considered the patient's social history through characteristics of age, education, occupation, income, postural positions maintained, and access to care.[10]

Regarding its epidemiology, between 70% and 80% of lower-limb ulcers are of venous etiology.[11,12] Pannier and Rabe[13] found in the general population between 18 and 79 years of age a prevalence of 0.6% of healed UVE and

0.1% of active wounds. The National Conference on Consensus of lower-limb ulcers[11] reports a population prevalence between 0.5% and 0.8% with an annual incidence between 2 and 5 cases for every 1000 people/year. With respect to its chronicity, it is estimated that between 40% and 50% of the wounds remain open or active for a period no less than 6 or 12 months; additionally, average times of recurrence of 42 weeks have been found, with an incidence of 22% of recurrence at three months, 39% at six months, 57% at 12 months, and 78% at three years.[14] For the Latin American population no reliable data is available on its incidence or prevalence, but it is estimated that the latter can be between 3% and 6%.[1] In Colombia, within a population prevalence of wounds of 5.2%, the UVE correspond to 14.6% of that value.[15] Information is still scarce about UVE in the regional and national contexts, which is why we must advance on the description of the chronic process of these lesions.

The objective of this study was to establish the relationship between the sociodemographic and clinical factors with cicatrization success in patients with UVE. This study is important for the nursing profession because, in our context, nurses are responsible for providing care to patients who suffer it and knowledge of the factors related with the UVE cicatrization process will contribute to promoting interventions that lead to the decrease of its presentation and recurrence.

Methods

A cohort type, prospective observational study was conducted with the participation of 80 patients with UVE who were monitored for up to 13 months. The sampling was non-probabilistic, intentional. Selection of participants was conducted in three clinics in the city of Medellín (Colombia) with specialized nursing care in treating vascular wounds. The study included patients with controlled chronic pathologies, without neurological compromise, with diagnosis of varicose and traumatic UVE by a physician or by a nursing professional specialized in wounds. All the participants had at least one wound complying with the classification criteria of venous classification, according to ultrasound record or clinical diagnosis – in case the patient had more than one UVE, the decision was made to evaluate and monitor the bigger wound and its satellite wound. The study excluded patients with presence of mixed ulcer, those in which there was no certainty that their diagnosis corresponded to UVE, those who abandoned treatment, and those showed intolerance with the use of compression bandage (treatment received). Every patient identified as potential participant was invited to partake in the study and was explained the reasons and benefits; none denied participation.

Information was gathered between September 2014 and October 2015. It was possible to observe the evolution of the UVE, considering at least five observation times (T0 –basal-, T1, T2, T3, and T4), with a difference of no less than 25 days between one evaluation and the other. The wound nurse at the clinic performed all the evaluations and healing, and used different technological dressings according to the wound's cicatrization stage; nevertheless, all the patients received compression bandages as part of the common treatment during follow up. To evaluate the stage and evolution of the UVE, the treating nurse along with the researcher applied the *Resvech 2.0* instrument,[16] a scale that measures improvement in the cicatrization process from 0 to 35, with the lowest scores indicating improvement. When tabulating the information from the instrument, infection and inflammation characteristics were recorded individually. To compare differences in cicatrization according to wound size, these were considered small when measuring $\leq$15.9 cm^2, medium from 16 to 63.9 cm^2, and large from 64 cm^2 and above.

For the statistical management of the data, a univariate analysis was used to calculate the frequency distributions of qualitative-type variables and for data of quantitative nature, normality tests were conducted with the statistical

distribution function through the Kolmogorov-Smirnov test with Lilliefors correction. The survival analysis considered as result variable the cicatrization success, which was defined as the complete cure of the wound in a time ≤90 days, evidenced by the presence of intact healed skin, absence of edges and absence of wound exudate. The model included those variables complying with statistical significance, biological plausibility or according to the Hosmer-Lemeshow criterion ($p \leq 0.25$). Censored data corresponded to five patients who quit the study, and four who – upon ending the study – did not achieve cicatrization.

To estimate cicatrization in function of time, the Kaplan-Meier method was used and the Logrank test was used for hypothesis contrast in comparison of two or more groups. The independent variables were dichotomized to define their input to the proportional risk model, thus: compromise of the wound Resvech score: slight = ≤15 points and high = >15; nurse experience in wound clinic: ≥5 years and <5 years; socioeconomic level: low = ≤2 and high = 3 and more; age of patient: ≤65 years and 66 and more years. The model also included the variables of gender and time in days since the appearance of the ulcer due to the clinical importance they represented. The Cox proportional risk model was carried out to study the multivariate effect on cicatrization over time. The statistical software used to process the information was Stata v.12.0. The research was approved by the Ethics and Research committees of the National Faculty of Public health at Universidad de Antioquia and of the three clinics where the data were collected. All participants signed the informed consent.

Results

The study evaluated 80 patients with UVE. All had at least one UVE, with a median of six months of antiquity. Table 1 shows the general characteristics of the participants. There was prevalence of female participants, married, low socioeconomic level, low schooling, and housekeeper as occupation. The mean age for this group was 65 years (minimum = 18 and maximum = 90). In life habits, there was higher frequency of tobacco consumption than alcohol, poor consumption of fruits and vegetables, high intake of beef and pork, as well as poor engagement in physical activity.

The 62.5% of the participants were treated by a nurse with experience of five and more years in wound clinic; 55% of the participants had a relative in charge of home care. It was evidenced that 73.8% had weight alterations; additionally, 77.5% suffered hypertension; 53.8% had a Yao index between 0.7 and 1.30. The most frequent antecedent was that of suffering from varicose veins (86.3%), followed by arterial hypertension (63.7%). Additionally, it was found that 66.3% of the participants had already had an episode of UVE; inclusively, 19 people had had more than three recurrences. In all, 39.6% manifested that these wounds had healed in ≤4 months. The most frequent location of the current wound was the internal malleolar (33.7%), with prevalence of the lower left limb (58.8%) (Table 2).

Table 3 shows information of the UVE during basal evaluation. It was found that 60% of these wounds measured less than 16 cm^2; the greatest affection occurred in the epidermis (77.5%), defined edges were present in 63.7%, slough was found in the wound in 51.2%, and 31.2% had saturated exudate. Infection and inflammation characteristics showed that the wound caused pain (95%), with erythema and perilesional edema (82.5% and 88.7%, respectively). Likewise, other characteristics were found, like presence of wound that did not diminish in size in 92.5% and wound that increases in size in 81.2% of the patients.

Table 1. General characteristics of 80 patients with diagnosis of ulcer of venous etiology

Variables	Value
Sociodemographic characteristics	
Gender; *n* (%)	
Female	59 (73.8)
Male	21 (26.2)
Age in years; average ±SD	65.3±14.34
Marital status; *n* (%)	
Single	13 (16.3)
Married/common law	42 (52.5)
Widowed/separated	25 (31.2)
Socioeconomic level; *n* (%)	
1 and 2	50 (62.5)
3 and more	30 (37.5)
Schooling; *n* (%)	
None	20 (25)
Basic Primary	42 (52.4)
Basic Secondary	9 (11.3)
Technical/university	9 (11.3)
Occupation; *n* (%)	
Housekeeper	49 (61.2)
Formal worker	11 (13.8)
Informal worker	9 (11.2)
Retired	4 (5)
Other	7 (8.8)
Life habits	
Exposed to tobacco; *n* (%)	42 (52.5)
Time of exposure to tobacco (years); median	33
Exposed to alcohol; *n* (%)	29 (36.3)
Time of exposure to alcohol (years); median	28
Consumption of fruits and vegetables per day; *n* (%)	
5 or more portions	15 (18.8)
4 or less portions	65 (81.2)
Consumption of meats; n (%)	
Beef/pork	34 (42.5)
Poultry/fish	15 (18.7)
Cold cuts	4 (5)
Others	25 (31.3)
Without data	2 (2.5)
Sedentary; *n* (%)	
Yes	34 (42.5)
No	46 (57.5)
Frequency of physical activity; *n* (%)	
≤1 time per week	3 (8.8)
2 to 4 times per week	11 (32.4)
≥5 times per week	20 (58.8)

SD: Standard deviation.

Table 2. Personal and family background, current clinical and wound characteristics of 80 patients diagnosed with ulcer of venous etiology

Variables	Value
Clinical characteristics	
Body mass index; *n* (%)	
Underweight	1 (1.2)
Normal weight	21 (26.2)
Overweight	29 (36.3)
Obesity	29 (36.3)
Body mass index; median	27.6
Blood pressure; *n* (%)	
Normal	18 (22.5)
Prehypertension	44 (55)
Stage 1 hypertension	11 (13.7)
Stage 2 hypertension	7 (8.8)
Ankle/arm index (Yao); *n* (%)	
<0.7	1 (1.2)
0.7 to 1.3	43 (53.8)
1.4 and more	6 (7.5)
Without data	30 (37.5)
Ankle/arm index; Average ±SD	1.13±0.16
Antecedents; *n* (%)	
High blood pressure	51 (63.7)
Diabetes Mellitus	14 (17.5)
Hypercholesterolemia or hypertriglyceridemia	25 (31.3)
Varicose veins	69 (86.3)
Surgeries due to venous disease	21 (26.3)
Family background of venous disease	45 (56.3)
Personal background of UVE	53 (66.3)
Cicatrization time of prior UVE; *n* (%)	
0 to 4 months	21 (39.6)
5 to 12 months	19 (35.8)
13 months and more	11 (20.8)
Without data	2 (3.8)
Cicatrization time of prior UVE in months; Median	5
Characteristics of current wound	
Antiquity of current wound; *n* (%)	
≤3 months	31 (38.7)
a 12 months	21 (26.3)
>12 months	28 (35)
Limb affected; *n* (%)	
Lower left limb	47 (58.8)
Lower right limb	33 (41.2)

Table 2. Personal and family background, current clinical and wound characteristics of 80 patients diagnosed with ulcer of venous etiology (cont.)

Variables	Value
Location of current wound	
Internal malleolar	27 (33.7)
External malleolar	6 (7.5)
Dorsal	6 (7.5)
Supra-malleolar	8 (10)
Distal third	15 (18.8)
Medial third	16 (20)
Proximal third	2 (2.5)
Number of recurrences; *n* (%)	
0 times	0 (0)
1 time	8 (15)
2 to 3 times	26 (49.1)
4 times and more	19 (35.9)
Number of recurrences; average ±SD	3.87±3.72

SD: Standard deviation

The cicatrization process was analyzed during all the evaluation times. Graphic 1 shows that change in wound size was bigger between T0 and T1, noting a decrease of nine points in the median score of the Resvech scale, meaning a change of compromise from moderate to slight; in T2, 25% of the participants had healed and in T4, process stagnation was observed in patients with large wounds and with associated complications; at the same time, maintained inflammation of the affected lower limb and decompensation in their comorbidities were evidenced.

Upon analyzing cicatrization in function of time, it was observed that 48.8% of the patients (52.5% of the women and 38.1% of the men, $p \leq 0.01$) had cicatrization success of the wound in a maximum time of 90 days. Wounds located on the dorsal remained for a longer time (median of 113.5 days) and wounds located in the anterior median third of the limb healed faster (median of 48 days).

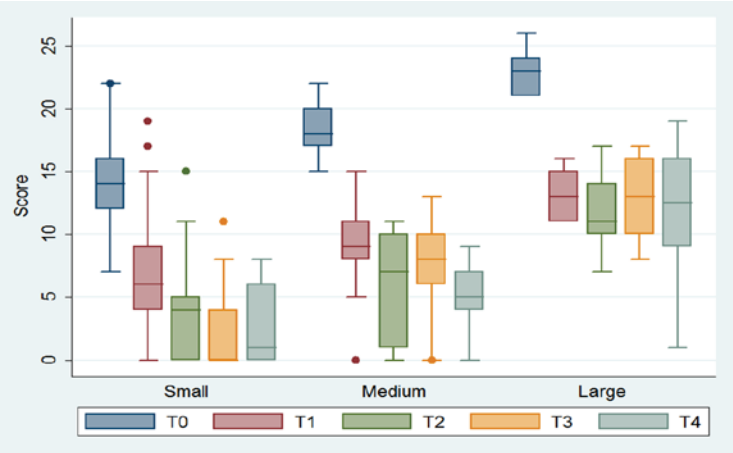
The Kaplan-Meier method was used to obtain the estimations of the cicatrization process from each of the evaluations of the 80 patients, of which 71 had cicatrization and nine were censored (due to loss and due to not presenting the event upon ending the follow up). The variable of follow up time had abnormal behavior of the data (Shapiro-Wilk test <0.0001). It was found that the median of the cicatrization time was 78 days (minimum = 14 days and maximum = 264 days, percentile 25 = 48 days and percentile 75 = 130 days). Graphic 2 shows the cicatrization in function of time, which exposes that the probability of an individual to healing increases over time.

To establish the variables that should be entered into the Cox proportional risk model, comparison was made of the cicatrization time with the variables dichotomized through the Logrank and Wilcoxon-Breslow tests. The first test was used when the graphics suggested differences in survival of the groups compared, the second test was used to find the statistic when it was not possible to establish that difference among groups. The variables shown in Table 4 were finally selected.

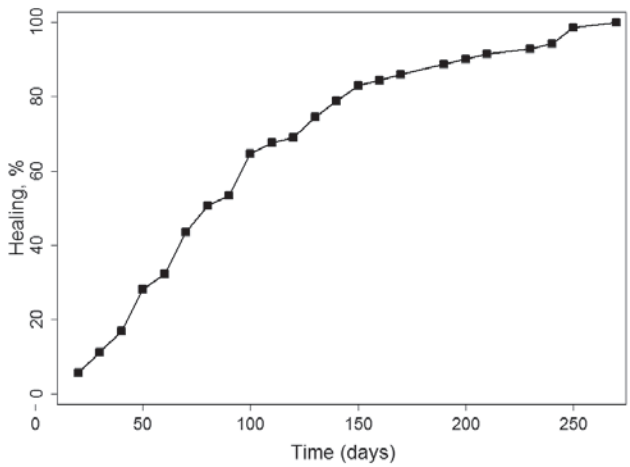
Thereafter, the Cox proportional risk model was conducted to study the multivariate effect on cicatrization over time. Several models were run, according to the variables candidates for

Table 3. Basal evaluation of the wound in 80 patients diagnosed with ulcer of venous etiology according to the Resvech 2.0 instrument

Variables	Value
Dimension of the principal lesion; *n* (%)	
≤15.9 cm^2	48 (60)
16-63.9 cm^2	23 (28.8)
64 cm^2 and more	9 (11.2)
Dimension in cm^2 of the principal lesion; Median	12.13
Dimension of the principal satellite wound; *n* (%)	
≤4 cm^2	27 (77.1)
>4 cm^2	8 (22.9)
Dimension in cm^2 of principal satellite wound; Median	1
Depth of affected tissue; *n* (%)	
Dermis or epidermis	62 (77.5)
Subcutaneous tissue	17 (21.3)
Muscle	0 (0)
Bone and annexed tissues	1 (1.2)
Stage of the edges; *n* (%)	
Diffuse	9 (11.3)
Defined	51 (63.7)
Damaged	18 (22.5)
Thickened	2 (2.5)
Wound bed tissue; *n* (%)	
Epithelial	3 (3.8)
Granulation	32 (40)
Slough in wound bed	41 (51.2)
Necrotic	4 (5)
Amount of exudate; *n* (%)	
Moist	7 (8.8)
Wet	24 (30)
Saturated	25 (31.2)
Dry or with exudate leak	24 (30)
Characteristics of Infection/inflammation; *n* (%)	
Pain	76 (95)
Perilesional erythema	66 (82.5)
Perilesional edema	71 (88.7)
Increased temperature	6 (7.5)
Exudate that increases	40 (50)
Purulent exudate	3 (3.7)
Friable or bleeding tissue	27 (33.7)
Stagnant wound	74 (92.5)
Biofilm tissue	1 (1.2)
Odor	5 (6.2)
Hyper-granulation	0 (0)
Wound that increases in size	65 (81.2)
Satellite lesions	35 (43.7)
Paleness of the tissue	5 (6.2)



Graphic 1. Evolution of cicatrization of 80 patients diagnosed with ulcer of venous etiology, according to the moment of measurement and size of wound



Graphic 2. Cicatrization in function of time of 80 patients diagnosed with ulcer of venous etiology

Table 4. Variables with potential to be included in the Cox proportional risk model of 80 patients diagnosed with ulcer of venous etiology

Variable	Test used	*p* value
Slight compromise of the wound	Logrank	≤0.0001
Small wound size	Logrank	≤0.0001
Experience of the nurse ≥5 years	Logrank	0.0158
Socioeconomic level ≥3	Logrank	0.0239
No antecedents of treatment	Wilcoxon-Breslow	0.0372
Time of the wound ≤6 months	Logrank	0.0461
Age ≤65 years	Logrank	0.0584
Gender male	Wilcoxon-Breslow	0.1017

input into the model and the final risk model was constructed with the Breslow method. The statistical software showed that the model is adequate ($\chi 2$ <0.0001). The Cox proportional risk model (Table 5) showed that cicatrization in all the evaluation moments is affected by the variables of the lesion's degree of compromise, nurse's experience, and socioeconomic level; age, wound antiquity, and gender were included, given the individual effect and prior knowledge of modification these variables exert on the cicatrization times. As noted in Table 5, the cicatrization rate of the individuals with slight compromise of the wound was 1.7 times faster with respect to those who had high compromise, throughout the study time and upon adjusting for the other variables. The cicatrization rate of those treated by a nurse with five years and more de experience was double (HR = 2.1) compared with those who were cared by a nurse with less experience. Likewise, those in socioeconomic levels one or two took twice the time to heal in relation to those from socioeconomic levels three and above.

Table 5. Cox proportional risk model of 80 patients diagnosed with venous ulcer

Variable	HR	Std. Err.	z	*p* value	95% CI
Slight compromise of the wound	2.7	0.8	3.47	0.001	1.5-4.7
Experience of the nurse ≥5 years	2.1	0.7	2.23	0.025	1.1-4.0
Socioeconomic level ≥3	2.0	0.6	2.34	0.019	1.1-3.6
Time of wound ≤6 months	0.9	0.3	-0.24	0.808	0.5-1.8
Age ≤65 years	1.7	0.5	1.85	0.064	0.9-2.9
Gender male	0.7	0.2	-1.32	0.187	0.3-1.2

HR: Hazard ratio; Std. Err.: Standard Error; CI: confidence interval

Discussion

In this study, participants with UVE were mostly females and were between the sixth and seventh decade of life, which has been described in literature.[5,17] Marques[18] stated that female prevalence is due to gestational disorder that lead to post-thrombotic syndrome, besides the high prevalence of varicose veins, although some studies [10,19] described among their participants a proportion of UVE in men above 50%.

This study found a cicatrization rate of 48.8% in 90 days or less. In light of this, Finlayson[20] compared the effectiveness of some methods in treating ulcers of venous etiology and found a 10-week cicatrization median for participants using compression bandages and 14 weeks for those using compression stockings; also, Lozano[21] proposed cicatrization times of 12 weeks when using multilayered compression bandage. In a systematic review, Borges[22] describes better cicatrization times with the use of compression bandage with 30% healing of the wound in the first two weeks of treatment. The author also proposes that cicatrization times are dependent on the treatment used and characteristics of the wound. Regarding the stage of wound compromise, this study found prolonged cicatrization times when wound size was large and compromise was high. With relation to this, Finlayson[20] also described more delay in cicatrization in wounds larger than 10 cm^2, as in other studies[23,24] referring to differences in cicatrization and prognosis when the wounds were bigger and had greater compromise on the tissue.

This study found that the experience of treating nurses determines the time and cicatrization success. Studies, like that by Adderley,[25] have compared general nurses with specialists

in treating wounds and have shown that the latter are more precise in identifying the lesion, diagnostic judgment, and suitability for treatment. In this regard, Ylonen[26] described in a literature review that the treating nurses have knowledge gaps concerning the evaluation, physiology, and healing process, hence, the author cites the need to increase knowledge and nursing care, as well as continuous education to the patient.. With relation to the aforementioned, Zarchi[27] warns on the treatment that the compression event should also be taught and perfected. Likewise, this author identified substantial variation in the pressure made by elastic and inelastic bandages when measuring the pressure exerted by different professionals who placed the bandages, finding that they had variable underestimations and overestimations in the pressure exerted. The author added that, because of its efficacy, well-established compressive therapy is the essential intervention to treat ulcers of venous etiology.

This research found better cicatrization times in participants from higher socioeconomic levels. With respect to this, Selvaraj[10] exposed that patients belonging to low and middle socioeconomic levels, with non-professional occupations and who remained on their feet for extended periods or seated because of household work, agricultural work, and informal work, favored development of venous disease that in time could be complicated with UVE. Similarly, Marques[18] found more prevalence of UVE in individuals from low socioeconomic levels, low income, and low educational level; some of these findings were also present in this research. To end, other risks exist associated to poor cicatrization, among them high body mass indices, poor nutrition, dietary intake low in fruits and vegetables and poor practice of physical activity.[28] In fact, our findings also showed high prevalence of these risk factors in the participants.

This study concludes that cicatrization of UVE in a time $\leq$90 days was associated to slight compromise of the wound, which involves its size and stage of tissue affectation, the expertise of the treating nurse, and the socioeconomic level $\geq$3. According to these factors, and considering that UVE are a multi-causal manifestation, we need to promote the relationship between knowing and doing in caring for individuals with ulcer of venous etiology, and it is recommended to emphasize during the formation of future nurses and during continuous education of those who are already professionals the theoretical and practical settings of prevention and treatment of UVE, which will contribute to improving the quality of care for the person with this health problem.[29]

Limitations. Some of the data of the evaluations was obtained from the clinical history or comments by the treating nurse, which can offer variation in the results. Although various confounding factors were considered and multivariate analyses were performed with adjustments by the risk factors established, the possibility exists that using different technological dressings to favor the wound bed affects the results.

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Effect of tele-nursing in the improving of the ultrasound findings in patients with nonalcoholic fatty liver diseases: A Randomized Clinical Trial study

Original article

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Effect of tele-nursing in the improving of the ultrasound findings in patients with nonalcoholic fatty liver diseases: A Randomized Clinical Trial study

Objective. To establish the effect of tele-nursing in the improving of the ultrasound findings in patients with non-alcoholic fatty liver disease. **Methods.** In this clinical trial, 60 patients with non-alcoholic fatty liver referring to specialized gastroenterology clinics affiliated to Shiraz University of Medical Sciences (Iran) were selected were randomly assigned to control or intervention group. All patients received necessary trainings on diet and physical activity. The subjects in the intervention group were followed up via phone by nurses for 12 weeks (twice a week during the first month and once a week during the following two months). The control group participants did not receive any interventions and were only followed up as usual by a specialist. Before and after the intervention, the liver size and histological status of their liver were examined using ultrasound in all the participants. **Results.** After 12

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weeks of start of the study, the mean of liver size decreased in the group followed up via phone by a nurse (13.15±1.22 cm to 12.90±1.16 cm, p=0.013), but this did not change significantly in the control group (12.55±1.56 cm to 12.56±1.57 cm, p=0.326). The greater difference in the mean liver size between the evaluations was in the intervention group with 0.26±0.53 cm versus -0.003±0.018 cm in the control group (p=0.012). Additionally, the fatty infiltration status of the liver tissue improves in the 66.6% of the intervention group versus 6.6% in the control group (p<0.001). **Conclusion.** The results of this study showed that tele-nursing led to improvement in liver size and liver histology in patients with Non-alcoholic fatty liver.

Descriptors: telenursing; non-alcoholic fatty liver; control groups; ultrasonography; randomized controlled trial.

Efecto de la tele-enfermería en el mejoramiento de los hallazgos ecográficos de pacientes con enfermedades de hígado graso no alcohólico: Ensayo clínico controlado

Objetivo. Establecer el efecto de la tele-enfermería en la mejoría de los hallazgos ecográficos en pacientes con hígado graso no alcohólico. **Métodos.** En este ensayo clínico, 60 pacientes con hígado graso no alcohólico referidos a servicios de Gastroenterología especializada afiliadas a la Universidad de Ciencias médicas de Shiraz (Irán) se dividieron aleatoriamente en los grupos de control y de intervención. Todos los pacientes recibieron capacitaciones sobre aspectos de la dieta y la actividad física. Los pacientes del grupo de intervención tuvieron seguimiento telefónico por enfermera (dos veces a la semana en el primer mes y una vez por semana los otros dos meses), y los del grupo control no recibieron atenciones diferentes a las consultas usuales al especialista. Tanto al ingreso al estudio como a las 12 semanas, a todos los participantes se les evaluó con ultrasonografía el tamaño y el estado histológico del hígado. **Resultados.** Después de 12 semanas de inicio del estudio decreció el tamaño del hígado en el grupo con seguimiento telefónico por enfermera (13.15±1.22 cm a 12.90±1.16 cm, p=0.013), mientras que no se observó diferencia significante en el grupo control (12.55 1.56 cm a 12.56±1.57 cm, p=0.326). La más grande diferencia entre las dos evaluaciones fue en el grupo de intervención con 0.26±0.53 cm versus -0.003±0.018 cm en el grupo control (p=0.012). Adicionalmente, el estado de infiltración grasa del tejido hepático mejoró en el 66.6% del grupo de intervención versus 6.6% en el grupo

de control ($p<0.001$). **Conclusión.** Los resultados de este estudio mostraron que la tele-enfermería condujo a la mejoría del tamaño de hígado y la histología hepática en pacientes con hígado graso no alcohólico.

Descriptores: teleenfermería; enfermedad del hígado graso no alcohólico; grupos control; ultrasonografía; ensayo clínico controlado aleatorio.

Efeito da tele-enfermagem no melhoramento das descobertas ecográficos de pacientes com doenças de fígado grasso não alcoólico: Ensaio clínico controlado

Objetivo. Estabelecer o efeito da tele-enfermagem na melhora das descobertas ecográficos em pacientes com fígado grasso não alcoólico. **Métodos.** Neste ensaio clínico, 60 pacientes com fígado grasso não alcoólico referidos a serviços de Gastrenterologia especializada afiliadas à Universidade de Ciências médicas de Shiraz (Irão) foram divididos aleatoriamente nos grupos de controle e de intervenção. Todos os pacientes receberam capacitações sobre aspectos da dieta e a atividade física. Os pacientes do grupo de intervenção tiveram seguimento telefónico por enfermeira (duas vezes por semana no primeiro mês e uma vez por semana os outros dois meses), e os do grupo controle não receberam atenções diferentes às consultas usuais ao especialista. A todos os participantes ao ingresso ao estudo e às 12 semanas se lhes avaliou com ultrassonografia o tamanho e o estado histológico do fígado. **Resultados.** Depois de 12 semanas de início do estudo diminuiu o tamanho do fígado no grupo com seguimento telefónico por enfermeira (13.15±1.22 cm a 12.90±1.16 cm, $p=0.013$), enquanto que não se observou diferença significante no grupo controle (12.55 1.56 cm a 12.56±1.57 cm, $p=0.326$). A maior diferença entre as duas avaliações foi no grupo de intervenção com 0.26±0.53 cm versus -0.003±0.018 cm no grupo controle ($p=0.012$). Adicionalmente, o estado de infiltração grassa do tecido hepático melhorou em 66.6% do grupo de intervenção versus 6.6% no grupo de controle ($p<0.001$). **Conclusão.** Os resultados deste estudo mostraram que a tele-enfermagem conduz à melhora do tamanho de fígado e a histologia hepática em pacientes com fígado grasso não alcoólico.

Descritores:telenfermagem; hepatopatia gordurosa não alcoólica; grupos controle; ultrassonografia; ensayo clínico controlado aleatorio.

Introduction

Non-alcoholic fatty liver disease (NAFLD) is one of the common liver diseases, a chronic disease associated with lifestyles with no physical activity and inappropriate nutritional habits.[1,2] This disease is characterized by the deposition of triglycerides as fat droplets in the cytoplasm of liver cells. In this case, liver fat content is defined higher than 5.5%.[1] NAFLD has a broad spectrum, while its severity varies from simple steatosis to non-alcoholic steatohepatitis, if it is not treated effectively, can lead to advanced cirrhosis and even liver cancer.[2] In various studies, risk factors, the relationship between unhealthy nutritional habits, reduced physical activity and the occurrence of the disease has been proven.[3] In fact, unhealthy nutritional habits along with inadequate physical activities have led to the prevalence of obesity and diabetes, blood lipid disorders, blood pressure, and metabolic syndrome. Consequently this has exposed large number of population to the risk of NAFLD.[4,3] According to an ever increasing report of unhealthy nutritional habits caused by lifestyle and reduced physical activity, as well as an increase in the prevalence of obesity, the prevalence of NAFLD in the community is on the rise.[3] The prevalence of this disease in the eastern countries is estimated to be about 16-30% amongst the general population, which is comparable with the western countries. In Iran, the prevalence of fatty liver is estimated to be around 32.8% detected by ultrasound.[1]

Diagnostic methods for this disease include biopsy, ultrasonography, CT scan, MRI, and blood tests. At present, liver biopsy is a gold standard to diagnose NAFLD, but due to invasive nature of this method it cannot be used for the population-based studies. Ultrasonography is a non-invasive diagnostic method for detecting non-alcoholic fatty liver disease, which is used more than other methods, since it is readily available and cheaper than the other graphical instruments while it is highly reliable.[5] There are currently two strategies to treat NAFLD including lifestyle interventions (including weight loss, diet and physical activity), and/or drug therapy.[6] Weight loss and lifestyle changes along with diet and increasing physical activity is usually recommended as the first step in treating this disease.[2]

In this regard, studying the effect of low calorie diet on patients with non-alcoholic fatty liver revealed a significant reduction in weight, liver enzymes (ALT and AST), and significant improvement in their ultrasound results.[7] In another study, the effects of 15 months of diet and exercise were evaluated, with an emphasis on weight loss, while a significant reduction in weight, liver enzymes and improvement in quality of life were observed.[8] One of the most important causes of treatment failure and lack of favorable response to prescribed treatment is undesirable follow through of the treatment by the patients. [9] Effective follow up is considered as an essential part of care

services. Repeated interventions and regular follow-ups seems necessary to promote healthy behavior.[10] One of the follow-up method is tele-nursing.[9] Tele-nursing is defined as the use of telecommunication technology to promote patient care.[10] Tele-nursing increases the relationship between the nurse and patients that leads to provision of patient care without time and place considerations, while it can also improve healthcare and reduce health costs.[11]

A number of studies verified the effect of nursing follow-up through phone by achieving the specified objectives.[9-11] In this regard, telenursing effects on glycemic control and BMI of patients with type 2 diabetes were examined, which determined that telenursing was capable of improving patients' metabolic indices.[12] Another research that had investigated the effect of telenursing on complying to diet in patients with type 2 diabetes, the results showed that telenursing led to enhancement of patients obedience to diet with type 2 diabetes.[13] NAFLD can be controlled and treated during its primary stages; however, if it is not diagnosed and treated on time, it will progresses, leading to undesirable complications. Hence it can be prevented by informing the patients about the course of the disease, appropriate training in from of weight loss, adherence to diet and increasing physical activity, and through follow-up.[10] Since to this point no study has been conducted in Iran, we aimed to investigate the effect of follow-up on dietary control and increased physical activity via phone on ultrasound findings of patients with NAFLD.

Methods

This randomized controlled clinical trial study was conducted from May 2013 to Dec 2016. The local ethics committee of Shiraz University of Medical Sciences approved this study with (Ethics committee code CT-92-92-62-6602), and registered in the Iranian Registry of Clinical Trials (IRCTcode: IRCT2015040411691N5). Based on the results from previous studies, 60 patients with NAFLD who had referred to subspecialty gastroenterology clinics affiliated to Shiraz University of Medical Sciences were enrolled in this study.[14,15] NAFLD was confirmed by an expert physician using ultrasound and laboratory tests. The inclusion criteria of the study were anyone who was 19 years or older, being overweight or obese (Body Mass Index (BMI) > 25 kg/m2), having the ability to do moderate physical exercise, having a telephone at home or a mobile phone, and not having any speech or hearing problems. The exclusion criteria were having any history of chronic liver diseases, such as viral or drug hepatitis, confirmed Wilson disease, primary hemochromatosis, suffering from hyperthyroidism or hypothyroidism, bile duct cancer, diabetes mellitus, obesity due to excessive use of corticosteroid, Cushing's syndrome, Addison syndrome, and chronic infections, such as tuberculosis, use of hepatotoxic drugs within the past 6 months, incidence of gall stones in the gallbladder, having been exposed to petrochemicals, alcohol consumption, drug abuse, and genetic diseases related to lipid disorders.

After obtaining written informed consents, simple randomization based on the table of random numbers was used to allocate patients to intervention ($n=30$) or control ($n=30$) groups. It should be noted that one participant in the control group was excluded due to lack of cooperation. In doing so, based on the suggestion of the statistician, numbers 0-4 were assigned to the control group and numbers 5-9 to the intervention group. At first, the researcher explained the nature of the disease, factors contributing to the disease, progression and prognosis, complications of the disease, and the importance of treatment and follow-up. Then, the researcher asked the participants to complete the demographic information form.

Before the intervention, to diagnose and evaluate the state of disease and parenchyma tissue and liver size, all participants were referred to specialized ultrasound center affiliated to Shiraz University of Medical Sciences. After ultrasound, patients were

divided into 4 groups including normal (grade 0), mild steatosis (grade 1), moderate steatosis (grade 2), severe steatosis (grade 3) according to their liver echo condition. Grading the disease based on the size and condition of the liver echo and its histological comparison with the adjacent kidneys, as well as comparison with the spleen echo and the shape of the diaphragm and the periphery of the liver internal vessels. Patient's liver was assessed by an ultrasound specialist using the Medison ultrasound machine (SA8000 model made in Germany).

In this study, a nutritionist was hired to offer consultation at a nutritional counseling center affiliated to Shiraz University of Medical Sciences. The participants received a written dietary recommendation. Then, they were asked to perform moderate physical activities at least 30 minutes a day 4-5 times a week to raise their heart rate and respiration. Jogging, cycling, aerobic exercises or any other activities with similar intensity were prescribed. In addition to one-on-one consultation, all the participants received a training booklet. It should be noted that specialist physicians, radiologists, nutrition counselors and patients were unaware of how the participants were assigned in the control and intervention group.

In the intervention group, the intervention lasted for 12 weeks to see if the participants followed up the recommended diet and physical activity. The participants were given self-report forms designed by the researcher to register their daily diets and physical activities. This allowed them to easily report the items during their follow-ups. The form included items of participant's adherence to diet and physical activities. In case a patient had not followed the diet and training program, the researcher tried to recognize and analyze the reasons and provide a possible solution. It should be noted that the conversations were recorded by the researcher during each session. The researcher contacted all the patients between 8 AM to 8 PM twice a week during the first month and once a week during the following months. On average, each conversation lasted for 15-20 minutes.[16,17] The control group participants did not receive any interventions and were only followed up as usual by a specialist. It is worth mentioning that the control group participants received the educational booklet at the end of study. After 12 weeks, participants were referred to the same center for ultrasound for re-evaluate the size and condition of their liver parenchyma. Then, the data were entered into the SPSS statistical software (version 22) and were analyzed using chi-square test, paired t-test, and independent t-test.

Results

This study was performed on 60 patients (30 in each group). It should be noted that one participant in the control group was excluded due to lack of cooperation, so, at the end of the study, there were 30 participants in intervention group and 29 participants in control group.

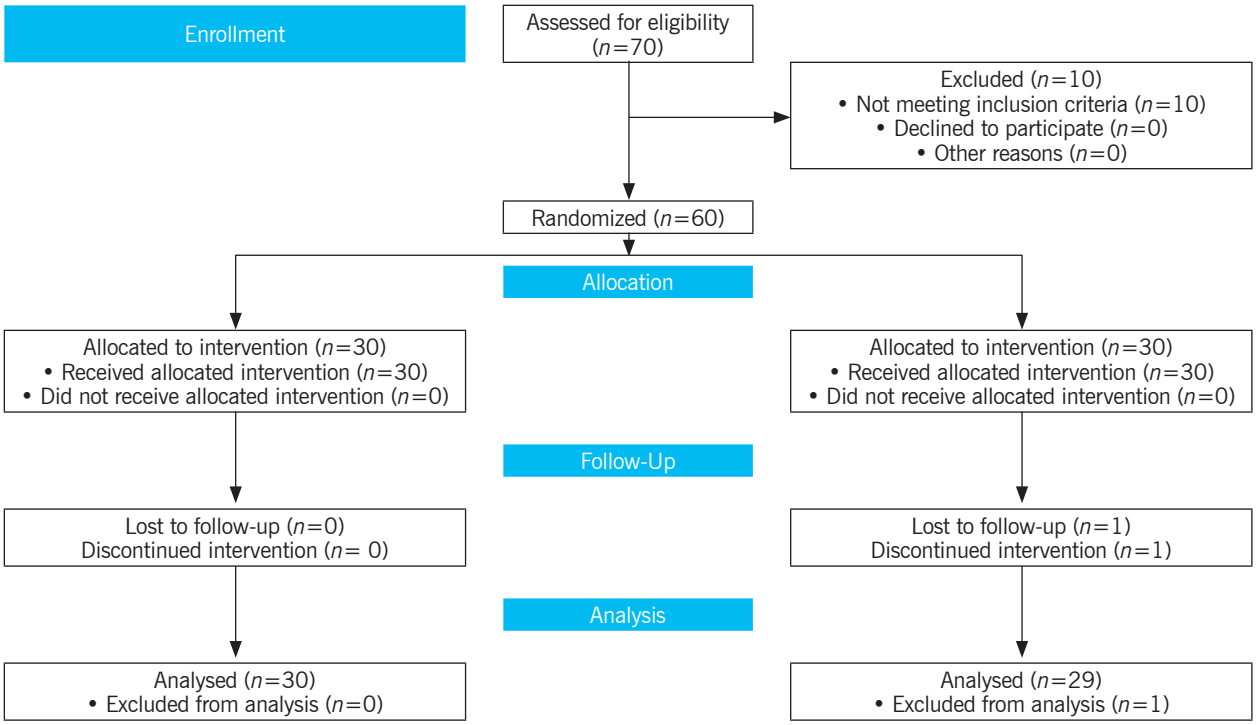

Figure 1. Flow diagram

In Table 1 we can observe that in both groups was predominance of males, aged 38 - 40 years and married participants. The results of independent t-test showed no statistically significant difference between the groups for these demographic characteristics. In the same Table 1 it is also reported that was no significant difference between the liver size before the intervention liver size of the studied groups before the intervention.

Table 1. General characteristics of the participants by group

Variable	Intervention group (*n*=30)	Control group (*n*=29)	*p*-value
Age; mean±SD (min-max)	40.3±9.6 (24-64)	38.3±9.5 (26-70)	0.437
Gender; frecuency (%)			
Female	8 (26.7)	6 (20.7)	0.590
Male	22 (73.3)	23 (79.3)	
Marital status; frecuency (%)			
Married	26 (86.7)	28 (96.6)	0.353
Single	4 (13.3)	1 (3.4)	
Liver size in cm before intervention (cm); mean±SD	13.15±1.23	12.56±1.56	0.109
Liver size in cm after intervention (cm); mean±SD	12.9±1.16	12.56±1.57	

As it can be seen in Table 2, the mean liver size in the intervention group was reduced after intervention, but the liver size did not change significantly in the control group. Based on the paired t-test, these changes were statistically significant only in the intervention group.

Table 2. Comparison of mean liver size in the studied groups before and after the intervention

Groups	Evaluation	Mean± SD	*p*-value
Intervention	Before	13.15±1.22	0.013
	After	12.90±1.16	
Control	Before	12.55±1.56	0.326
	After	12.56±1.57	

According to independent t-test, the greater difference in the mean liver size between the moments before was in the intervention group with 0.26±0.53cm versus -0.003±0.018cm cm in the control group (p=0.012). Table 3 shows that in terms of fatty infiltration status 66.6% of the intervention group versus 6.9% of the control group improved their status. According Fisher exact test the difference between the two groups was statistically significant (p<0.001).

Table 3. Evaluation of fatty infiltration in liver tissue in two groups of control and intervention after the intervention

Fatty infiltration	Intervention group *n*=30		Control group *n*=29	
	Frequency	Percent	Frequency	Percent
Improved	20	66.6	2	6.9
Not recovered	10	33.3	23	79.3
Got worse	0	0	4	13.8

Discussion

This study aimed to investigate the effect of tele-nursing on ultrasound findings of patients with NAFLD. It revealed that after 12 weeks of follow-up, the mean liver size decreased in the intervention group, but this index did not change in the control group. After the intervention, Changes were statistically significant only in the intervention group and the difference in mean liver size among the studied groups was statistically significant. Also, after the intervention, the fatty infiltration status of the liver tissue in the intervention group was better than the control group, and the differences between the two groups were statistically significant.

The results of this study are consistent with the results of the study by Hang *et al.*,[18] on the compliance with the diet, especially the nutritional diet and physical activity. They had phone counseling with the patients after bone marrow transplantation, their results showed that

patients in the follow-up group via phone followed the treatment regimen more, and there was a significant difference between the intervention and control groups. A study by Kamrani *et al.*[9] was conducted with the aim to investigate the effect of patient training and following-up via phone by nurses on observing diet by patients with acute coronary syndrome, but they concluded that patient training and follow up via phone were both effective methods. However, the patients in the phone follow up group in comparison with the training group had better compliance with the dietary treatment.

In fact, all patients required to be trained and consulted continuously,[19] because training patients and follow up is an effective way to change lifestyle and observation of treatment diets.[9] Lack of treatment program observation is a therapeutic problem in chronic diseases,[11] hence, continuous and regular follow up by nurses is highly important. Investigating the behavior and patients follow up when they are at home as well as follow up and control through renewing the trained issues can help to institutionalize the trained healthy behaviors. This in turn will reduced the frequency of referring to doctors and hospitalization, reduced economic burden, increased longevity, and reduced mortality.[19] At the present, follow up at home via phone has become a popular method in managing chronic diseases.[10]

Follow up via phone is a very useful and inexpensive method to assess the patient requirements that can lead to reduced number of patient visits with to treatment teams.[20] It also removes time and place barriers for nursing care. This care method will increase the positive results of the treatment, promotes nurse-patient communication that controls the health status of patients, as well as continuous nurse's encouragement increases patients autonomy, which encourages them to take care of themselves.[21] For example, Baker *et al*.,[22] found that the use of training programs, along with continuous phone follow up, led to increased awareness, promotion of healthy behavior and quality of life in patients with heart failure. Another study conducted by Shojaei *et al*.,[23] on patients with heart failure revealed that educating patients who are being discharge and follow up via phone after discharge will reduce the re-admission of these patients to hospitals and doctors' offices. Anderson reported that patients' education by nurse, nutrition expert and social worker at the time of discharge by nurses through visiting their house or follow up via phone after discharge led to reduced readmissions in the intervention group in comparison with control group.[24]

However, the results of some studies are not line with the present study. A study by Beur *et al.*on patients with breast cancer stated that phone follow-up had no significant impact on treatment of patients who had no advanced breast cancer.[25] The reason for ineffective results of call follow up in these patients might be due to the nature of the disease and its impact on the patient's ability to accept treatment. Another study by Wang et al. also showed the effect of home visits and call follow ups on the training after the discharge and re-admission of patients, but they concluded that call follow up alone might not be effective in reducing re-admission of patients, and it is necessary to simultaneously use different methods of training after discharge.[26] Generally it can be stated that this type of counseling might lead to continuous and continuity of patient-health communication with the health system, and can also have a positive impact on all aspects of the health care and its outcomes, while it can highlight the effect of nurse in preventing and treating the chronic diseases by preventing the development of disability and complications caused by the disease.

As the results of this study show, tele-nursing improves liver size and liver histology state in patients with non-alcoholic fatty liver. It can be stated that tele-nursing promotes healthy behaviors by increasing patient's awareness. In fact, regular follow-up and telephone counseling services after clinical counseling can be a

continuation and complementary trainings that can lead to the emergence of healthy behaviors in patients as well as improving the outcome of treatment. Further studies are recommended to investigate the effect telenursing on improving patient's health statues with NAFLD and other chronic illnesses. Conducting qualitative researches on this subject would be beneficial.

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Caring for Patients without being with them: Invisibility of Nursing Care in Hospitalization Services

Original article

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Caring for Patients without being with them: Invisibility of Nursing Care in Hospitalization Services

Objective. This work sought to understand the meaning of invisible care for nurses in hospitalization services. **Methods.** Qualitative ethnographic study conducted in Medellín, Colombia. Seven open interviews were conducted with an equal number of participants and 30 h of observation. The data was subjected to ethnographic analysis. **Results.** Two principal categories of analysis emerged: *What nurses do and The transformation of the role*; the latter with three subcategories *(Priorities of the nurses: "What the nurse should do", Priorities of the institutions: "That which has to be done", Result of the change: "The unknown nurse").* Nurses during their daily work transform their caregiver role to adapt to diverse demands from the institutional contexts. If they do what they believe they should do, they are invisible to the institutions, but if they do what is visible to the institutions, care becomes invisible to patients and their relatives. **Conclusion.** In the hospitalization services,

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nurses care for patients but without being with them. Nurses during their daily work transformed their caregiver role to adapt to diverse demands from the contexts, especially the institutional context.

Descriptors: nursing care; hospitalization; nursing staff, hospital; qualitative research.

Cuidar al paciente sin estar con él: invisibilidad del cuidado de enfermería en servicios de hospitalización

Objetivo. Comprender el significado del cuidado invisible para las enfermeras en los servicios de hospitalización. **Métodos.** Estudio cualitativo etnográfico, realizado en Medellín (Colombia). Se realizaron 7 entrevistas abiertas a igual número de participantes y 30 horas de observación. A los datos se les hizo análisis etnográfico. **Resultados.** Emergieron dos categorías principales de análisis: *Lo que hace la enfermera* y *La transformación del rol;* esta última con tres subcategorías *(Prioridades de las enfermeras: "Lo que debe hacer", Prioridades de las instituciones: "Lo que tiene que hacer", Resultado del cambio: "La enfermera desconocida").* Las enfermeras en su quehacer diario transforman su rol cuidador para adaptarse a diversas exigencias de los contextos institucionales. Si ellas realizan lo que creen que deberían hacer, son invisibles para las instituciones, pero si hacen lo que es visible para las instituciones, el cuidado se vuelve invisible para los pacientes y sus familiares. **Conclusión.** En los servicios de hospitalización, las enfermeras cuidan pacientes pero sin estar con ellos. Las enfermeras en su quehacer diario transformaron su rol cuidador para adaptarse a diversas exigencias de los contextos especialmente, el institucional.

Descriptores: atención de enfermería; hospitalización; personal de enfermería en hospital; investigación cualitativa.

Cuidar ao paciente sem estar com ele: invisibilidade do cuidado de enfermagem em serviços de hospitalização

Objetivo. Compreender o significado do cuidado invisível para as enfermeiras nos serviços de hospitalização. **Métodos.** Estudo qualitativo etnográfico, realizado em Medellín (Colômbia). Se realizaram 7 entrevistas abertas a igual número de participantes e 30 horas de observação. Aos dados se lhes realizou análise etnográfico. **Resultados.** Emergeram duas categorias principais de anaálise: *O que faz a enfermeira* e *a transformação do papel;* esta última com três subcategorias *(Prioridades das enfermeiras: "O que se deve fazer", Prioridades das instituições: "O que em que fazer", Resultado da mudança: "A enfermeira desconhecida").* As enfermeiras no seu afazeres diário transformaram seu papel cuidador para adaptar-se a diversas exigências dos contextos institucionais. Se elas realizam o que acham que deveriam fazer, são invisíveis para as instituições, mas se fazem o que é visível para as instituições, o cuidado se torna invisível para os pacientes e seus familiares. **Conclusão.** Nos serviços de hospitalização, as enfermeiras cuidam pacientes mas sem estar com eles. As enfermeiras nos seus afazeres diários transformaram seu papel de cuidador para adaptar-se a diversas exigências dos contextos especialmente, o institucional.

Descritores: cuidados de enfermagem; hospitalização; recursos humanos de enfermagem no hospital; pesquisa cualitativa.

Introduction

Nursing care is the way of helping people during an interaction process,[1] or what is denominated, a phenomenon of human transaction in which nurses assume their potentialities and weaknesses to help others in an honest and selfless manner. This reciprocal interaction is the best valued by patients because it provides care aimed at wellbeing, communication, intimacy, trust, and security, which generate better results and higher satisfaction in patients and families.[2] And, although nurses during their hospital practice reflect upon the actions and interactions they have with patients,[3] several factors impact upon the way of interacting with them in the hospitalization services and which distance them from the care actions defined as essential pillars of the work of this profession. Hence, invisible care for nurses is defined by Huércanos[4] "as the intentional care actions that are not registered, whether because of inadequate registry systems, or due to the scarce value they assign to those actions". It seems, then, that this type of care becomes invisible because these actions that seek to safeguard the patient's intimacy and dignity, preserving the privacy of their own body, are delegated or are simply not registered, which generates the loss of its importance against others that for the institutions are more valuable. Added to the aforementioned, diverse changes in the economic, political, and social dynamics have derived in the way the caring practices acquire a form of invisibility or intangibility.[5]

Thus, the emphasis in the biologist model that assigns greater validity to the medical exercise; additionally, the organizational structures require of nurses greater dedication principally to administrative functions delegated in the hospitalization services.[6] This is how interaction and wellbeing actions to benefit patients are not valued or registered, which results in the loss of importance of their execution and, hence, generates the invisibility of the care to patients and to the very nurses. The review of the literature available found no published studies related with this problem within the Colombian and Latin American context on how nurses view the care they provide and how visible it is, besides the recognition of their work and, consequently, from the results be able to reflect on strategies that contribute to the construction of the meaning of care and, thus, add to the development of new theories. The aim of this study was to understand the meaning of invisible care by nurses during their practice in hospitalization services.

Methods

This was a research with qualitative approach and tools from the ethnographic method. From this perspective, the study phenomenon was based on a naturalist paradigm because it focused its attention on the relations created

among people who share the same context. Seven nurses participated selected through intentional sampling. The first two participants were received through social contacts of the researcher who is a professional nurse with friends working in hospitalization services; the other five participants were referenced by the first two. None rejected participation or quit during the process. To gather information, the researcher made the presentation and explained the objectives of the investigation. The inclusion criteria of the participants sought to explore the variability of the phenomenon, seeking for the individuals to have different years of experience and ages, as well as to work in different hospitalization services without regard for the specialty.

Additionally, a non-structured participant observation was conducted in an institution different from the one the participants interviewed belonged. It centered on aspects of care during different moments of the day and work shifts, (morning, afternoon, and night), which permitted saturation of the categories emerging from the interviews and focused on aspects of invisible care that have been defined in literature, in the interaction nurses have with patients, the care they provide, and the records they keep of these.

The interviews took place between January and August 2017 in Medellín (Colombia). The principal researcher, who is a nurse specialized in Biomedical Basic Sciences, began gathering information with a guiding question in relation with "speaking of experiences lived during the act of caring in a hospitalization service". This activity, on average, lasted one hour and took place outside the participants' work, which offered an appropriate environment for dialogue and without the presence of other people. The principal researcher recorded and transcribed all the interviews within the following 24 h; thereafter, these were stored in a text file. It was not necessary to hold more than one interview per participant.

After transcribing the interviews, it was read in detail, line by line, looking for units of significance; thereafter, manual cards were made with analytic notes that served as guide for the categorization. Finally, with each of the cards a careful reading was made in search of new codes that could emerge in the reports of the participants or in those codes in which emphasis had to be made in the following interviews or observations. The categories were named with live codes. The analysis ended after verifying the data collected and theoretical saturation was reached. During the final analysis process, a conceptual map was created that permitted relating the categories obtained and the different subcategories around the meaning that emerged. For this final process, informatics tools were used favoring the organization of the information, such as Excel® and Cmap-Tool®.

Another data collection technique was observation of the participant during 30 h between April and August 2017, at a tier-III level of care institution, in various hospitalization services (pediatrics, internal medicine, neurology, orthopedics, and surgery) and which had the presence of nurses 24 hours per day and which focused on aspects, like the nurse's interaction with the patient, the care provided, functions performed and records of activities; the aforementioned, during different times of the day (morning, afternoon, and night). The methodological and analysis data product of the interviews and the observation were recorded in a field diary. The nursing coordinator from the hospitalization area made the researcher be the gatekeeper for the nurses from the hospitalization services to conduct the interview without setbacks.

To guarantee criteria of research rigor, like credibility, auditability, and transferability, the results were socialized with the participants, the institution, and the academic community. The ethical aspects considered in this study included the approval by the Ethics Committee of the Faculty of Nursing at Universidad de Antioquia, the informed consent signed by the participants and endorsement from the Research Committee from the institution in which the study was carried out.

Results

Seven interviews were conducted to an equal number of nurses. Table 1 shows that the participants were predominantly women, with mean age of 34 years; four were single and the other three were married, with hospital care work experience of 1 to 9 years in public or private institutions, with private institutions being the most common and the most-frequent service being internal medicine where four of the seven participants worked.

Table 1. General characteristics of participating nurses

Participant	Gender	Age	Marital status	Years of experience	Service assigned
E1	Male	36	Single	6	Obstetrics Gynecology
E2	Male	39	Married	3	Internal medicine
E3	Female	47	Separated	9	Surgical
E4	Female	28	Married	5	Pediatrics
E5	Female	31	Married	5	Internal medicine
E6	Female	30	Single	2	Internal medicine
E7	Female	27	Single	1	Internal medicine

The findings, herein, accounted for two principal categories: *What nurses do and The transformation of the role.*

What nurses do

According to the participants, the condition of invisibility of care depends on diverse actions that do not generate economic profit to the institutions; in fact, care actions will be more or less visible according to their impact on fulfilling the institution's indicators and objectives, as stated by a participant: *If you start having problems in the delay of the patient being discharged, if they complain of why they did not get their medications or some other reason, all that affects the hospital's indicators negatively and shows the lack of a professional there integrating all those things (E4).* Thus, invisible care is present in everything nurses do to benefit patients, although it does not always involve their physical presence in their room. This is how for the participants, nurses are in a labor dilemma in which their actions are aimed at providing the best care, without physically moving away from the patient. This way, nurses keep in mind the needs of patients and their families and end up being mediators to solve said needs with the other members of the health staff (physicians, nursing aides, nutritionists, psychologists, administrators and nursing coordinators, and other nurses). The difficulty nurses find in this mediation is invisible for everyone else. Thereby, according to the participants, nurses perform actions that seek the wellbeing of patients and their families, less complications in health, rapid return to their homes and for their relatives to be trained and able to offer effective companionship. Nevertheless, these actions are carried out without patients realizing it, as shown by the testimony: *(...) I can waste many hours of my time seated by the phone managing things for the patient to be discharged well and nobody realizes this because that is not recorded anywhere (E6).*

Transformation of the role

Consequently, nurses cannot provide all the direct contact they wish with patients and families; they feel that all those functions as mediators distance them from their patients, and gives way to the transformation of the nurse's caregiver role in

hospitalization services with three subcategories described ahead:

Priorities of the nurses: "What they should do"

According to the participants, the work performed by nurses in the hospitalization services depends essentially on what their priorities are: what they should do as nurses, the actions to carry out to defend their professional position and the evaluation of the art of nursing care – understood by them as all the skills to be able to care: *(...) care refers to the bond I have with my patient and it is a personal link, face to face, where I manage to empathize with my patients and understand their needs. Patients need care, they need you to be there, to keep them company, to ask if they are hungry, help them eat, things like that (E4).* This narration shows that the participant prioritizes activities framed within the direct care of people and the satisfaction of their basic needs, and no other functions.

Priorities of the institutions: "That which has to be done"

Additionally, nurses also perform actions that distance them from their patients and which depend specially on the administrative functions assigned by the institutions and that are aimed at maintaining management indicators, management of human resources, or others that are delegated (request for diets and supplies, for example) that limit direct contact with patients and their families: *It is very difficult (to comply with functions) because many times the institution demands activities that are not a priority for us (...), like, for example, filling out forms because these are record keeping actions that can wait (E2).* In this sense, this narration accounts for how nurses emphasize on the institution's priorities, which go against their own as professionals. Hence, with the transformation of the role, nurses have had to alter their care object, and without wishing it, have gone onto [caring] for supplies and devices, in other words to watch over, an assignment made by the institution. Thus, for example, is this report of an observation: *In a hospitalization service classified as complex, the nurses' post-reanimation activities center on quickly asking the doctor for the orders to replace with supplies and elements from the cardiac arrest cart that have been used, being on the phone, and writing on the computer. At the end of the hall, a group of five people, who seem to be related to the patient who suffered the cardiac arrest, weep while a nursing aide approaches one of the women, places a hand on her back and speaks with her (OBS2/HOSP).* For the participants, the work of nurses in the institutions is framed principally on reaching the indicators that permit evaluating the quality of the service and the institution's sustainability: *With merely one adverse event occurring that affects the statistics and the indicators, they see that more (the negative) than what I am doing well with the patient (E3).*

Result of the change: "The unknown nurse"

The participants expressed that many consequences are brought on by the transformation of the nurse's role in their daily work in hospitalization services. One of these is having to distance themselves from the patients, delegating direct care actions due to having to comply with all the functions the institution imposes on them with the result of invisibility reported previously: *The nurse's activity has been delegated to the nursing aide because in most hospitals the nurse gets a workload or a time different from other types of activities: elaboration of the Kardex, administrative matters and what they (administrators and coordinators) badly call service management, which is where we have ended up (E1).* Likewise, the participants stated that nurses feel dissatisfied with their work, feeling that their work is not valued although the institution obligates them to perform tasks that do not generate recognition or are invisibles for the

rest: *Nurses get tired of the work due to lack of motivation. You have a bunch of responsibilities and things to do that people don't appreciate and which finally has no valuable essence for the patient's care... for example: I can have multiple functions in a committee, draw up a record, look for this paper and nobody recognizes that (E6).* The participants state that another result of the change is that of having to do numerous activities for which they were not trained in the university or for which they received no preparation or training in the institution. In this sense, beyond requesting preparation to perform these actions, they consider that other staff should perform them and, thus, they could dedicate their time to caring, which is their priority and objective: *You are trained in a very beautiful thing and think you will be the super nurse and will do everything for your patients, but when you get here (institution), you find out that it is not only the patient, but also other things that are delegated from the administrative area and I believe those activities could be done by other people (E3).*

The participants indicate that in the hospitalization service there is a monotonous routine of work and activities. Independent of the model the institution uses to distribute the staff and their functions, in hospitalization services, during the day and night, nothing that is not contemplated is admitted, like approaching the patient, which can become a complication of the shift because nurses must comply with the institution's priorities above their own priorities centered on care: *Hospitalization services have established routines because you generally have a rather large load of patients, then you have to stick to an established work plan, given that if you get out of that, whether because you wish to go further with a patient or because the work requires it, it all gets complicated (E4).*

In addition, the participants highlight, during the daily work of the hospitalization services, that it seems that communication was breached or became ineffective due to the work dynamics. They claim that perhaps in the organization communication was substituted among the professionals and nursing care was rendered invisible by the individualist work of each of the members of the health staff, which complicates interaction visibility processes of the work teams with themselves and with patients. To them, communication is limited to each of the members of the health staff elaborating their care plan, and for the nurse being in charge of unifying them all and in many occasions without their own being considered: *who looks at the nursing care plan? Nobody! You look at it and perform its activities among your coworkers and with the personnel under your supervision, but for many other disciplines that is not important (E2).*

Lastly, for the participants during the nurse's daily work, the change of role has given way to the visibility of those members of the health staff who are in direct contact with patients and families, rendering invisible actions nurses carry out without providing direct care*: In the care part, the auxiliary staff is more visible; nurses become visible when there are problems in daily affairs because when the patient complains or makes a request, that is when nurses come in and have to talk with the patient or with the relative and see what was the problem (E4).*

Discussion

The polysemy of the concept of care is given by the different perspectives from which it is addressed, but the interaction is an almost general trait in the infinity of theoretical definitions. Thereby, for Watson,[7] nurses in the act of caring become a therapeutic instrument, given that it merits the exercise of interpersonal relationships to achieve their objective of caring. The findings of the investigation account for the importance nursing care has within the hospital context, but most important still, of the nurse's direct presence in the very act of caring. In this sense, nursing care is essential because by patients being hospitalized and away from their natural environment this experience can be made even more painful.[8] This is why care gains importance during hospitalization because it favors diminished stress and constitutes

by itself an important therapeutic effect, given that nurses make use of hospitality, of the art of caring with technical perfection and ethical commitment, to respect and encourage caring for the vulnerable person.[9] Hospitals are uncertain worlds where care is invisible and it cannot be counted,[10] which is why it is expected that to care we can comprehend the meanings people give to the experience of being ill and hospitalized and the feelings this causes them. Hence, the art of caring is intentional and implies that nurses have the intention of caring and not only carrying out the act of presence and performing some functions. What is really incomprehensible is that nurses care quite well for patients and at the same time not care for the persons.[11]

Although the results of the investigation show how nurses participate actively in care, they acquires some indirect traits of care, given that they only become interlocutors of care, absorbed by the rest of the administrative and management functions assigned to them in the institutions. This is how other authors have reported it,[12] finding that nurses in the care they provide in hospital services recognize what they call the intrinsic factor – internal call to recognizing the profession; even more than the external factor – limitations of the current social, political, and economic contexts, which are intercommunicated, and a category of praxis that goes beyond the physical care and which involves the integration of scientific and empirical nursing knowledge for its recognition. This agrees, in turn, with the findings in our study in the sense that the participating nurses recognize that their priority is to provide care, however, they receive pressure from an institution that obligates them to dedicate their time to other activities that end up taking them away from the patient.

The results also revealed that nurses endured a transformation in their daily work, which contrasts the duty of direct and integral care versus the delegated management functions they have to conduct. This finding is similar to that found by other authors[13] who emphasize that hospital institutions have reduced the human to the biological, moving the work of nurses away from their humanist and holistic vision of care with little support from the institutions to provide care, which is why some actions remain relegated, like effective communication and the close interaction with patients and families. All this makes it difficult for nurses to care due to the amount of roles, tasks, and responsibilities the institutional economy and policies have delegated to them [14] and which in this study reported on the problem of job dissatisfaction.

The results also indicated that nurses are multifaceted and carry out multiple tasks delegated to solve situations that emerge in the hospital and with patients; this finding coincides with that of another study[15] that states that the nurse's world implies being attentive to everything occurring simultaneously in the space assigned to their responsibility, doing everything for the patients and not with them, given that they seek their benefit, even if they know they could have as consequence becoming invisible to the patients and their families. Agreeing with the results of this investigation with respect to the transformation of the caregiver role, nurses face the "double agency" care by caring;[16] care for people, caring to spend the least amount of resources possible to ensure business sustainability, good indicators, and service quality. Nevertheless, for the nurses participating in this study, the change of role is not presented critically, given that although they should be providing more direct care and performing less administrative activities, it is not possible to dispense with the latter because they redound to the quality of care, and end up making the nurse's care invisible; a paradoxical situation already alerted by other authors,[17] and which has been explained with little representation from nursing in organizations where primacy is given to medical recognition.[18]

Another finding in the investigation is to highlight how nurses in their daily work are transformed as consequence of a disjunctive of the exercise of a free profession, autonomous in its decisions and regulated by law and institutions. Although they

are the majority personnel in health care, nurses are largely invisibles; patients do not recognize if the individual providing care is or is not a nurse, and that invisibility is given essentially by the hierarchical structure of the organizations, the authority of the physicians, hospital policies, and threats of disciplinary actions.[19] The aforementioned contrasts with results from the work in which nurse participants believe patients recognize them, but due to aspects different from care and end up identifying them by the uniform or any symbol in them and for being the person that resolves situations that arise and not for the closeness they have with them or for resolving their primary needs, which, according to the nurses, would be ideal for patients, but which in reality are exerted by the nursing aides. It is in this sense that another author[20] states that the interest of nurses is to satisfy others, focused on the requirements and needs of institutions; a fact that was verified in this study when the participants expressed not having the autonomy to defend their priorities.

Furthermore, it was found that the power exerted over nurses transforms their role in the hospitalization services and conditions the effect on how they provide care. The aforementioned could be explained by the punitive power of the health institutions when whatever they wish is not carried out, or the power of reward that provides rewards to actions when whatever they desire is done and their actions favor economic gain,[19] which brings as a result the transformation of the role in the eagerness to compete for greater institutional benefits or, even, to not lose their jobs. Additionally, the results show that their image has been distorted with the evolution of the contexts in which they provide care, given that they have modified their role and that image they were bringing from the past in which service for another, the devotion, vocation, and sacrifice that made them better nurses has been distorted. In contrast, the only thing this image has achieved is to victimize nurses and, with it, care, given that the idea of "guardian angel" is not precisely the contemporary portrait of what the profession needs, and it is necessary to step away from the script of virtue to approach an identity based on knowledge, autonomy, and empowerment to obtain free and direct exercise for people and the families.[21] This way, the transformation of the nurse's role causes conflicts because of the lack of recognition of their work, a product of not being heard or seen positively, when what they need is to feel with power in decisions for caring of patients.[19]

Agreeing with the results mentioned, when the nurse's role is transformed, confusion is produced in their daily work with other participants from the health staff, especially with the nursing aides, given that patients and their relatives think that nursing professionals solve problems but do not care for them, making it necessary for nurses to start identifying themselves through "verbal and non-verbal insignia"[22] to mitigate the issue of professional invisibility or the confusion of roles.

Regarding the results obtained, the participants account for the dissatisfaction and lack of motivation the nurses suffer because they cannot practice the role they learnt during their formation with the current context for the autonomous exercise of the profession.[23] In this sense, their job dissatisfaction in the hospitalization services is associated to difficulties in their interpersonal relation with coworkers, incoherence between their formation and the job demands, work monotony, and work pressure.[24] Finally, they have had to adapt to caring amid a context of an economic model of health services that changes the relationship of professionals with patients and which makes it difficult to provide care of excellence.[24]

This study concludes that nurses in hospitalization services feel they care for patients but without being with them. In their daily work, they transformed their caregiver role to adapt to diverse demands from the institutional contexts. If they do what they believe they should do, they are invisible for the institutions, but if they do what is visible for the institutions, care becomes invisible for patients and their relatives. In the search for an equilibrium, nurses in their daily work transform their role to adapt to changes and demands, especially the institutional ones.

Nursing needs to redefine itself as discipline in the clinical practice, assigning more importance to the interaction and direct care of patients and their families, which will permit it to be more visible. In addition, it is fitting for institutions to understand the true functions of the nurse and delegate in another human resource the numerous administrative functions they must perform and which distance them from direct care.

The principal limitation in this study was that because it was a qualitative research questions could arise about its rigorousness and reliability, which is why it has maintained the methodological and ethical rigor necessary to guarantee an adequate collection of information, as well as its analysis. Likewise, another difficulty is related with conducting the interviews and observations in which the presence of the principal researcher could modify the behavior of the subjects and contexts. Lastly, it is important to clarify that the discussion of the findings had to done with studies around the invisibility of nursing care conducted in other countries of distinct contexts and work dynamics different from Colombian nursing.

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