30 years of Acta Paulista de Enfermagem – Challenges in the editorial situation and practices in the path of excellence

With over 2,000 manuscripts published, 31 volumes available and more than 100,000 pages in circulation, Acta Paulista de Enfermagem is celebrating its 30th anniversary in 2018. In its quest to become an important vehicle of scientific communication in Brazil and around the world, Acta has exceeded the goals set in 1988, the year it was founded, and, in 2018, it ranks among the best journals in the area of nursing and health, both nationally and internationally.

Acta launched its activities under the management of the distinguished professors Laís Helena Ramos de Oliveira Franco (PhD), then head of the Department of Nursing of Paulista School of Medicine, and Maria Cristina Santos Gedraite (PhD), as Editor responsible for the journal. At that time, the primary objective was that Acta would serve as an active channel for publications from the graduate studies program of the Department of Nursing. Its mission was to promote sharing of experiences between schools of nursing. Over the course of the years, professionals committed to intensifying the impact of the published findings started to project the journal to other editorial levels. Professor Nilce Piva Adami (PhD) worked vigorously on the journal’s editorial processes, so that the publication would flow continuously and the quality of accepted manuscripts would be rigorously analyzed. Efforts were made to select the numbers and itemize important studies in the issues that would then be circulated among the academic community. The first indexation of Acta Paulista de Enfermagem was in the LILACS database (Latin American and Caribbean Literature in Health Sciences) and BVS (Virtual Health Library).

In the mid-2000s, Professor Alba Lucia Bottura Leite de Barros (PhD) became the head of the Nursing Department of the Paulista School of Medicine and, in partnership with Professor Maria Clara Cassulini Matheus (PhD) and librarian Edna Terezinha Rother, sought to index the journal in important databases. During this period, Acta secured important indexations, such as Web of Science, SciELO, Scopus, Cinahl and Cuiden, and obtained its first impact factor, and its citations were analyzed by ISI (Institute for Scientific Information/JCR – Journal Citation Reports). Under this management team, the journal achieved the Qualis A2 position in the CAPES (Coordination for the Improvement of Higher Education Personnel) stratification. During the 2000s, a noteworthy change occurred in the
editorial area. The journals, which until then had never been assessed in terms of format, standard, and scope, needed to adopt an appropriate frequency, their own format, language that would differentiate them between one another, and considerable indicators to position them in relation to the demands (requirements) of the databases.\(^{(3,4)}\)

In the beginning of 2012, when the Department of Nursing became the Paulista School of Nursing, a University Unit of the Federal University of São Paulo, Professor Lucila Amaral Carneiro Viana (PhD) invited Professor Dulce Aparecida Barbosa (PhD) to become the scientific editor of the journal. In order to meet new requirements and make Acta one of the leading journals in its area, significant advances took place, since the editorial world required the journals to become open access and seek financial sustainability to ensure the continuous publications of its issues. Consequently, decisions were made to close ISSN 0103-2100 (printed version) and that, from that year on, the academic-scientific community would only use the online format (ISSN 1982-0194). Activities such as interactivity among authors and selection of manuscripts on electronic platforms were the most discussed issues during Acta’s endeavor to reposition the journal.\(^{(5)}\)

In 2013, Professor Sonia Maria Oliveira de Barros (PhD) assumed the position of director of the Paulista School of Nursing and management of the journal, focusing her efforts as editor-in-chief on professionalizing Acta’s editorial processes. She selected ScholarOne as the online platform for submitting manuscripts, adopted the graphic design for the journal, redesigned the home page to temporarily meet the demands of Acta users, adopted XML language for published articles, and launched interactive activities on social networking websites. She also strongly invested in the specialization of professionals who were or are part of the Editorial Office, in addition to implementing the first online system for receipt of publication fees (PayPal). During her mandate, Acta launched its activities on the following databases: SCImago (SCImago Journal & Country Rank), DOAJ (Directory of Open Access Journals), Redalyc and Cabell’s Directory.\(^{(6)}\)

Since 2015, under my management, as director of the Paulista School of Nursing, Acta Paulista de Enfermagem has sought greater independence from the boards of the institution, as well as important partnerships with national and international organizations. In my view, being the director of the School of Nursing and editor-in-chief of the journal are activities that must be systematically re-discussed, in light of the dedication required to manage a scientific journal. Her mandate was marked by investments in management and relationships in order for the journal to adhere to editorial requirements and continue being a scientific journal of excellence. Some of the goals were indexation of the journal in PubMed Central and consequently on Medline, pursuit of A1 stratification in Qualis from CAPES and to gradually increase the impact factor, which has grown since the start of her mandate, adhere to the “Continuous Publication” editorial format, and rethink the journal’s direction on digital platforms, the RevEnf Portal and preprint policy. Today, Acta Paulista de Enfermagem is a financially
self-supporting journal with financial planning to ensure uninterrupted circulation. It is important to underscore the important role played by the Editorial Committee, formed by research professors and nurses with PhDs, in guiding the assessment processes for manuscripts submitted by the academic community to the journal. Managed by the Support Foundation of the Federal University of São Paulo, Acta has received important incentives from development agencies, such as CAPES, CNPq (National Council for Scientific and Technological Development) and FAPESP (São Paulo Research Foundation).

Acta Paulista de Enfermagem is celebrating its 30th anniversary in 2018 and aspires to complete another 30 years and uphold its long history of credibility and competence. We would like to thank all of our partners, professionals, and teams for their dedication and having helped us arrive to where we are today. We know we still have much more to do and emphasize that our goal is to strengthen the loyalty of our users, offer the world quality benchmark literature and perform with excellence in relation to editorial practices in the world. We also congratulate all you nurses and health professionals who trust in our work!

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**References**


30 anos de Acta Paulista de Enfermagem – Os desafios do cenário editorial e as práticas rumo à excelência

Com mais de 2000 manuscritos publicados, 31 volumes disponíveis e mais de 100.000 páginas em circulação, a Acta Paulista de Enfermagem completa em 2018, 30 anos de existência. Marcada pela aspiração de se tornar um importante veículo de comunicação científica no Brasil e no mundo, a Acta ultrapassou as metas pretendidas em 1988, ano do seu nascimento, e, em 2018, se consagra entre os melhores periódicos da área de enfermagem e saúde nacionalmente e internacionalmente.

Na sua primeira direção, a Acta iniciou as suas atividades com a gestão das ilustres Professoras Doutoras Laís Helena Ramos de Oliveira Franco, então Chefe do Departamento de Enfermagem da Escola Paulista de Medicina e Maria Cristina Santos Gedraite, como Editora Reponsável pela Revista. Naquela época, o principal objetivo era que a Acta se mantivesse como canal ativo das publicações oriundas do programa de pós-graduação do Departamento de Enfermagem, tendo como missão favorecer a troca de experiências entre as Escolas de Enfermagem.(1) Com o passar dos anos, profissionais engajados com o propósito de potencializar os achados publicados passaram a projetar a Revista para outros patamares editoriais. A Profª Drª Nilce Piva Adami atuou fortemente nos processos editoriais da Revista, cuidando para que a publicação se mantivesse de forma ininterrupta e que a qualidade dos manuscritos aceitos fosse criteriosamente analisada. A Profª Drª Nilce Piva Adami relata o esforço tido para selecionar os números e relacionar importantes pesquisas nos fascículos que então seriam circulados junto à comunidade acadêmica. A primeira indexação da Acta Paulista de Enfermagem foi na base Lilacs - Literatura Latina-Americana em Ciências da Saúde e BVS – Biblioteca Virtual em Saúde.(2)

Foi em meados dos anos 2000 que a Profª Drª Alba Lucia Bottura Leite de Barros se tornou Chefe do Departamento de Enfermagem da Escola Paulista de Medicina e, em parceria com a Profª Drª Maria Clara Cassulini Matheus e a Bibliotecária Edna Terezinha Rother, buscaram indexar a Revista em importantes bases de dados. Durante esse período, a Acta conseguiu importantes indexações, pode-se citar a Web of Science, SciELO, Scopus, Cinahl, Cuiden e conquistou o seu primeiro fator de impacto, sendo as suas citações analisadas pelo ISI - Institute for Scientific Information/ JCR – Journal Citation Reports. Cabe ressaltar, que foi nesta gestão que a Revista conquistou a posição de Qualis A2 na estratificação da Capes – Coordenação de Aperfeiçoamento de Pessoal de Nível Superior. Durante os anos...
2000 mudanças notórias aconteceram na área editorial. As Revistas que até então nunca haviam sido avaliadas em formato, padrão e escopo, precisaram adotar uma periodicidade adequada, formato próprio, linguagem que as diferenciasse uma das outras e indicadores consideráveis que pudessem posicioná-las frente às demandas (requisitos) das bases de dados.(3,4)

No início de 2012, quando o departamento de Enfermagem se tornou Escola Paulista de Enfermagem, Unidade Universitária da Universidade Federal de São Paulo, a Profª Drª Lucila Amaral Carneiro Viana convidou a Profª Drª Dulce Aparecida Barbosa para se tornar a Editora Científica da Revista. Frente às novas exigências de posicionar a Acta como um dos principais periódicos da área de atuação, notórios avanços aconteceram, visto que o mundo editorial exigia que as Revistas se tornassem Open Access e buscassem a sua sustentabilidade financeira para garantir a publicação contínua dos seus fascículos. Assim decidiu-se que o ISSN 0103-2100 (versão impressa), fosse encerrado e que, a partir daquele ano, a comunidade acadêmico-científica passasse a adotar somente o formato on-line (ISSN 1982-0194). Atividades como interatividade entre os autores e seleção dos manuscritos em plataforma eletrônica foram às pautas mais discutidas rumo ao reposicionamento que pretendia-se como meta para Acta.(5)


Desde 2015, sob a minha gestão, como Diretora da Escola Paulista de Enfermagem, a Acta Paulista de Enfermagem tem buscado maior independência frente aos colegiados da Instituição e parcerias importantes com órgãos nacionais e internacionais. Para mim, ser Diretora da Escola de Enfermagem e Editor-Chefe da Revista são atividades que precisam ser rediscutidas regimentalmente, visto a dedicação que se tem para gestionar um periódico científico. Gestão e Relacionamento marcam esta gestão que tem trabalhado para que a Revista possa aderir às demandas editoriais de forma a manter-se continuamente como período científico de excelência. Como meta, pode-se mencionar a indexação da Revista no PubMed Central e consequentemente no Medline, busca pela estratificação A1 no Qualis da Capes e aumentar gradativamente o fator de impacto que já tem sido crescente desde o início da sua gestão, aderir ao formato editorial “Publicação

A Revista Acta Paulista de Enfermagem completa 30 anos em 2018 com aspiração de completar mais 30 e manter na sua trajetória um vasto histórico de credibilidade e competência. Agradecemos a todos os parceiros, profissionais e equipes que se mantiveram atentos e contribuíram para que chegássemos até aqui. Sabemos que temos muito para fazer e enfatizamos que a nossa meta é fidelizar os nossos usuários, levar uma literatura de qualidade e referência para todo o mundo e performar com excelência rumo às práticas editoriais no mundo. Fica registrado o nosso parabéns para você Enfermeiro e Profissional da Saúde que confia em nosso trabalho!

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Treinta años del Acta Paulista de Enfermería – Desafíos del escenario editorial y de las prácticas en el camino a la excelencia

Con más de 2000 manuscritos publicados, 31 volúmenes disponibles y más de 100.000 páginas en circulación, el Acta Paulista de Enfermería cumple en 2018 30 años de existencia. Marcada por la aspiración convertirse en un importante vehículo de comunicación científica en Brasil y en el mundo, el Acta sobrepasó las metas establecidas en 1998, año de su nacimiento, y en 2018, se consolida entre los mejores periódicos del área de enfermería y salud a nivel nacional e internacional.

Con su primera dirección, el Acta inició sus actividades bajo la gestión de las ilustres Profesoras Doctoras Laís Helena Ramos de Oliveira Franco, por entonces Jefa del Departamento de Enfermería de la Escola Paulista de Medicina, y Maria Cristina Santos Gedraite, en su rol de Editora Responsable de la Revista. En aquella época, el principal objetivo era que el Acta se mantuviese como canal activo de las publicaciones originadas en el programa de posgrado del Departamento de Enfermería, teniendo como misión favorecer el intercambio de experiencias entre las Escuelas de Enfermería. Con el pasar de los años, profesionales comprometidos con el propósito de potenciar los hallazgos publicados, comenzaron a proyectar la Revista en otras escalas editoriales. La Profª Dra. Nilce Piva Adami actuó con fuerza en los procesos editoriales de la revista, asegurándose de que su publicación se mantuviese ininterrumpidamente y de que la calidad de los manuscritos aceptados fuese minuciosamente analizada. La Profª Dra. Nilce Piva Adami relata el esfuerzo realizado para seleccionar los números y relacionar importantes investigaciones en los fascículos que habrían de circular entre la comunidad académica. La primera indexación del Acta Paulista de Enfermería fue en la base Lilacs – Literatura Latinoamericana en Ciencias de la Salud, y BVS – Biblioteca Virtual en Salud.

Fue hacia mediados de los años 2000 cuando la Profª Dra. Alba Lucia Bottura Leite de Barros se convirtió en Jefa del Departamento de Enfermería de la Escola Paulista de Medicina y, conjuntamente con la Profª Dra. María Clara Cassuliní Matheus y la Bibliotecaria Edna Terezinha Rother, se enfocaron en indexar la Revista en importantes bases de datos. Durante dicho período, el Acta consiguió importantes indexaciones, entre las que vale citar la Web of Science, SciELO, Scopus, Cinahl y Cuiden, y registró su primer factor de impacto, siendo sus citas analizadas por el ISI – Institute for Scientific Information / JCR – Journal Citation Reports. Corresponde destacar que fue durante esta gestión que la revista alcanzó la posición de Qualis A2 en la seg-
mentación de la Capes – Coordinación de Perfeccionamiento de Personal de Nivel Superior (Coordenação de Aperfeiçoamento de Pessoal de Nivel Superior). Durante aquellos años 2000 sucedieron notables cambios en el área editorial. Las Revistas, que hasta ese entonces no habían sido nunca evaluadas en formato, estándar y alcance, debieron adoptar una periodicidad adecuada, formato propio, lenguaje que las diferenciase entre sí e indicadores considerables que pudiesen posicionarlas ante las demandas (requisitos) de las bases de datos.\(^{(3,4)}\)

A comienzos de 2012, cuando el Departamento de Enfermagem se convirtió en Escola Paulista de Enfermagem, Unidad Universitaria de la Universidade Federal de São Paulo, la Profª Dra. Lucila Amaral Carneiro Viana invitó a la Profª Dra. Dulce Aparecida Barbosa para tomar el puesto de Editora Científica de la Revista. Frente a las nuevas exigencias de posicionar el Acta como uno de los principales periódicos del área de actuación, se realizaron notables avances, considerando que el mundo editorial requería que las Revistas se convirtiesen en Open Access y buscaran su propia sustentabilidad financiera para garantizar la publicación continuada de sus fascículos. Así se decidió que el ISSN 0103-2100 (versión impresa) se cerrara, y que a partir de aquel año, la comunidad académico-científica pasase a adoptar solamente el formato on-line (ISSN 1982-0194). Tanto las actividades como las interacciones entre los autores y la selección de los manuscritos en plataforma electrónica fueron los tópicos más discutidos en el camino al reposicionamiento que se pretendía como meta para el Acta.\(^{(5)}\)

En 2013, la Profª Dra. Sonia Maria Oliveira de Barros asumió la Dirección de la Escola Paulista de Enfermagem y la conducción de la revista, y orientó sus esfuerzos como Editora en Jefe en el camino de la profesionalización de los procesos editoriales del Acta. La por entonces Directora adoptó el ScholarOne como plataforma de remisión online de los manuscritos, adoptó un proyecto gráfico propio para la Revista, rehizo la Home Page para que la misma atendiese temporalmente las necesidades de los usuarios del Acta, buscó la adopción del lenguaje XML para los artículos publicados e inició el trabajo de interacción vía redes sociales. La Profª Dra. Sonia Barros apostó con fuerza a la especialización de los profesionales que formaban y forman parte de la Oficina Editorial, además de adoptar el primer sistema de recepción on-line de las tasas de publicación (PayPal). Durante su gestión, el Acta inició sus actividades en las bases SClmago, Journal & Country Rank, DOAJ – Directory of Open Access Journals, Redalyx y Cabell's – Directory.\(^{(6)}\)

Desde 2015, bajo mi gestión, como Directora de la Escola Paulista de Enfermagem, el Acta Paulista de Enfermería ha buscado una mayor independencia respecto de los académicos de la Institución, así como alianzas importantes con organismos nacionales e internacionales. Para mí, ser Directora de la Escola de Enfermagem y Editora en Jefe de la Revista resultan actividades que necesitan ser rediscutidas a nivel reglamentario, considerando la dedicación necesaria para gestionar un periódico científico. Gestión y Relación marcan a esta administración, que ha trabajado para que la Revista pueda adherirse a las demandas editoriales, de manera tal de mantenerse continuamente como periódico científico de excelencia. Como meta, puede mencionarse la indexación de la Revista en PubMed Central y, consecuentemente, en Medline, búsqueda de la calificación A1 en el
Qualis de la Capes e incrementar gradualmente el factor de impacto, ya creciente desde el inicio de su gestión, adherirse al formato editorial “Publicación Continua” y reconsiderar los rumbos de la Revista en las plataformas digitales, Portal RevEnf y política Pré-Print. Hoy en día, el Acta Paulista de Enfermería es una Revista que se mantiene económicamente, y cuenta con planificación financiera para garantizar su circulación ininterrumpida. Cabe reiterar el importante papel de la Comisión Editorial, formada por profesores investigadores y enfermeros doctores en la conducción de los procesos de evaluación de los manuscritos remitidos por la comunidad académica a la Revista. Gestionada por la Fundação de Apoio de la Universidade Federal de São Paulo, el Acta ha recibido importantes incentivos provenientes de las agencias de fomento Capes – Coordinación de Perfeccionamiento de Personal de Nivel Superior, CNPq – Consejo Nacional de Desarrollo Científico y Tecnológico (Conselho Nacional de Desenvolvimento Científico e Tecnológico) y Fapesp – Fundación de Amparo a la Investigación del Estado de São Paulo (Fundação de Amparo à Pesquisa do Estado de São Paulo).

La Revista Acta Paulista de Enfermería cumple 30 años en 2018, con la aspiración de completar otros 30, manteniendo en su trayectoria una vasta historia de credibilidad y competencia. Agradecemos a todos los aliados, profesionales y equipos que siempre estuvieron atentos y contribuyeron para que llegásemos hasta aquí. Sabemos que aún hay mucho por hacer, y destacamos que nuestras metas incluyen fidelizar a nuestros usuarios, ofrecer literatura de calidad y de referencia para todo el mundo y actuar con excelencia en el camino a las prácticas editoriales en el mundo. ¡Que quede muy clara nuestra felicitación y agradecimiento a ti, Enfermero y Profesional de la Salud, que confías en nuestro trabajo!

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Analysing the use of a computerized system by hospital managers

Análise do uso de um sistema informatizado por gestores hospitalares

Análisis del uso de un sistema informatizado por parte de gestores hospitalarios

Marlene Cristina dos Santos¹
Heimar de Fátima Marin¹

Abstract

Objective: To analyze the use of a computerized system by hospital managers, evaluating their satisfaction related to the usefulness and ease of use of system.

Methods: Case study, with a non-experimental design, conducted in a general hospital. The instrument used was based on the technological acceptance model. The population was composed of 63 managers and, based on the inclusion criteria, 60 managers were included in the study sample.

Results: The system was considered useful by 90.5% of managers, while 84.7% agreed on its ease of use. The analyzed external variables (age, ease of using the technology, provision of training and technical support, computer availability, and favorability of use), showed an influence on satisfaction with the ease of use. The age and provided training did not influence satisfaction on the usefulness of the system.

Conclusion: The managers showed greater satisfaction with the usefulness of the system when compared to the ease of use, due to the characteristics of the system and the institution.

Keywords
Medical informatics; Health information systems; Electronic health records; Technology assessment, biomedical; Hospital administration

Descritores
Informática em saúde; Sistemas de informação em saúde; Prontuário eletrónico; Avaliação de tecnologias em saúde; Gestão hospitalar

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Analysing the use of a computerized system by hospital managers

Introduction

Information is the power key of this technological era. More access to information means more opportunity to choose, decide and guarantee better living conditions, health, resources, and finances.\(^1\) In the health area, considering the exponential increase in data and information resulting from scientific evolution, resources have begun to be developed and implemented to ensure the good use and management of information.\(^2\)

Contributing to this evolution, computerized systems (CS) are considered essential in health care, strengthening the business competitiveness and also the continuous improvement of health care.\(^3\) In this scenario, the computerization of health records is an irreversible trend in the hospital environment; however, several factors are involved in the acceptance and utilization of technology information and communication resources by professionals.

Thus, it is necessary to plan the adoption of such technologies, considering user satisfaction regarding usefulness and ease of use, as this perception directly influences the belief that a system can increase work performance, which will influence the use of the system.\(^4,5\)

Therefore, it is necessary to understand the conditions under which computerized systems are adopted by health institutions, so that necessary improvements can be sought which make their use more favorable.\(^6\) The research scenario is a hospital institution that is a regional reference site for supplementary health care in the Unimed Health System.

The institution where the research was conducted, seeking to improve its work processes, adhered to the practices of computerization, and a computerized system was implemented in all areas of care, support, and management, making its use compulsory. However, it was unknown how its employees evaluated this tool, and what factors are critical to satisfaction with the system.

Based on these observations, this study aimed to analyze the use of a computerized system by hospital managers, evaluating their satisfaction and acceptance regarding usefulness and ease of use, seeking to identify the external variables that influenced manager satisfaction.

Methods

This was a case study, with a non-experimental design, conducted in a general, private, medium-sized hospital in the southern area of the state of Minas Gerais. The instrument adopted to perform the research was based on the technological acceptance model (TAM),\(^7\) to measure perceived usefulness and ease of use, correlating with external variables.

The population consisted of multiple professionals, who either directly or indirectly were involved in the hospital management process. To verify the correlation of the variables, the Spearman’s correlation test was used.

Inclusion criteria were: employees of the hospital, with a minimum of six months’ management time, who occupied positions of supervision, coordination, or direct and/or indirect leadership, users of the computerized system, and those who were not on a medical or maternity leave, or on vacation, and who agreed to participate in the research, by signing the Terms of Free and Informed Consent Form.

The variables of the study were: age, variables of the TAM attributes (perceived usefulness, and ease of use), and the external variables: ease of use of technologies, initial training and system updates, technical support by the information technology team, computer availability, and favorability of use of the system. The study was submitted to the Research Ethics Committee of the Federal University of São Paulo, and received Approval No. 1,150,876. Data collection was conducted from September to November of 2016.

Results

Sixty respondents took part in the study. The age ranged from 24 to 55 years, with the largest age...
group being those between 30 and 39 years (71.6% of the sample). There was a predominance of females, 78.3%, and 68.6% of managers had \textit{lato sensu} specialization. Most of the managers were nurses (55%), followed by members of the multidisciplinary team (30%).

Participants demonstrated greater satisfaction with the usefulness of the system, compared to the ease of its use. Data showed that 90.5% of the participants considered the system to be useful for their functions, while 84.7% of the participants considered the system to be user-friendly. The issues that presented disagreement among participants were related to the agility of the system, attendance of all of their work processes, ease of finding what they were looking for in the system, clarity, and ease of use of resources such as icons, reports, pages, and screens.

The age variable showed influence only in the satisfaction with the ease of use, and without correlation with the perceived usefulness of the system.

The external variables that showed correlation with the two constructs were: ease of use of technology, provision of technical support by the information technology team, number of computers available to managers to access the system, and favorability to use the system (Tables 1, 2 and 3).

Table 1. Correlation of the variables, “Ease of use of technology” and “I like to use the computerized system”, with the constructs, perceived usefulness and ease of use

<table>
<thead>
<tr>
<th>Construct issues: perceived usefulness and ease of use</th>
<th>Ease of use of technology</th>
<th>I like to use the system</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU 1A. The CS is accessed several times a day by me</td>
<td>-0.256655</td>
<td>0.37035</td>
</tr>
<tr>
<td>1B. Using the CS is useful for my functions</td>
<td>-0.318455</td>
<td>0.408951</td>
</tr>
<tr>
<td>1C. Using the CS makes my job easier</td>
<td>0.159521</td>
<td>-0.543266</td>
</tr>
<tr>
<td>1D. Using the CS enables me to perform my activities faster</td>
<td>0.413881</td>
<td>-0.434615</td>
</tr>
<tr>
<td>1E. Using the CS increases my work productivity</td>
<td>-0.386327</td>
<td>0.164609</td>
</tr>
<tr>
<td>1F. The CS addressed my work process in its entirety</td>
<td>-0.405669</td>
<td>0.537054</td>
</tr>
<tr>
<td>EU 2A. Learning to use the CS was easy for me</td>
<td>-0.257725</td>
<td>0.37035</td>
</tr>
<tr>
<td>2B. I do not get confused in performing my activities using the CS</td>
<td>-0.401345</td>
<td>0.37035</td>
</tr>
<tr>
<td>2C. Using the CS is easy, simple, and fast for me</td>
<td>0.350697</td>
<td>0.119498</td>
</tr>
<tr>
<td>2D. The CS has a pleasant visual look/design</td>
<td>0.292009</td>
<td>0.14858</td>
</tr>
<tr>
<td>2E. My interaction with the CS is clear and understandable</td>
<td>0.420686</td>
<td>0.259807</td>
</tr>
<tr>
<td>2F. I easily find what I need in the CS</td>
<td>0.396531</td>
<td>0.236903</td>
</tr>
<tr>
<td>2G. The available features (icons, reports, pages, and screens) are clear and easy to use</td>
<td>0.292438</td>
<td>0.269168</td>
</tr>
</tbody>
</table>

Table 2. Correlation of the variables, “Initial training” and “Training and system updates”, with the constructs, perceived usefulness and ease of use

<table>
<thead>
<tr>
<th>Construct issues: perceived usefulness and ease of use</th>
<th>Initial training</th>
<th>Training updates</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU 1A. The CS is accessed several times a day by me</td>
<td>-0.03936</td>
<td>0.29837</td>
</tr>
<tr>
<td>1B. Using the CS is useful for my functions</td>
<td>-0.00128</td>
<td>0.169857</td>
</tr>
<tr>
<td>1C. Using the CS makes my job easier</td>
<td>-0.131139</td>
<td>0.024552</td>
</tr>
<tr>
<td>1D. Using the CS enables me to perform my activities faster</td>
<td>-0.144643</td>
<td>0.095167</td>
</tr>
<tr>
<td>1E. Using CS increases my work productivity</td>
<td>0.153669</td>
<td>0.041982</td>
</tr>
<tr>
<td>1F. The CS addressed my work process in its entirety</td>
<td>0.247302</td>
<td>0.131264</td>
</tr>
<tr>
<td>EU 2A. Learning to use the CS was easy for me</td>
<td>-0.257725</td>
<td>0.29837</td>
</tr>
<tr>
<td>2B. I do not get confused in performing my activities using the CS</td>
<td>-0.401345</td>
<td>0.259807</td>
</tr>
<tr>
<td>2C. Using CS is easy, simple, and fast for me</td>
<td>0.350697</td>
<td>0.119498</td>
</tr>
<tr>
<td>2D. The CS has a pleasant visual look/design</td>
<td>0.292009</td>
<td>0.14858</td>
</tr>
<tr>
<td>2E. My interaction with the CS is clear and understandable</td>
<td>0.420686</td>
<td>0.259807</td>
</tr>
<tr>
<td>2F. I easily find what I need in the CS</td>
<td>0.396531</td>
<td>0.236903</td>
</tr>
<tr>
<td>2G. The available features (icons, reports, pages, and screens) are clear and easy to use</td>
<td>0.292438</td>
<td>0.269168</td>
</tr>
</tbody>
</table>
Discussion

The ease of use of technology is a factor that influences its acceptance. Individuals with better computing skills are more likely to manipulate technology tools. A study conducted in Austria concluded the need for development of all those involved in the use of health systems, from hospital managers, health professionals, the information technology industry to academia.\(^{8}\)

In addition to development, the institution also needs to ensure integration among health professionals and have the technological resources available, because some adaptation of this professional is necessary. In this technological scenario, the professional can or cannot be interested in learning and knowing the tools that will be beneficial to them in their activities.\(^{9}\) This study corroborates findings of those authors, demonstrating that the ease of using technological devices influenced both the satisfaction with the usefulness of the system, and with the ease of use.\(^{9}\)

The second question, in which the external variables were correlated with the constructs of perceived usefulness and ease of use, was related to favorability of use of the system by the managers. The results for this question influenced, in a significant way, the perception of the individuals in relation to perceived usefulness, as well as ease of use on all the correlated issues, leading to the conclusion that the less the manager likes to use the system, the less positive will be his evaluation.

The result translates the opportunity for the institution to involve its management staff, listening and engaging them in the processes of system improvement, understanding the fact that not liking to use the computerized system limits its satisfaction and, consequently, its use.

The user’s negative perception of technology is a factor associated with the difficulty of following and using technological innovations. In this sense, it is important that designers of all systems seek to develop graphic interfaces with good usability, aiming to meet the professional expectations, with the objective of not hindering the acceptance for use.\(^{10}\)

The resistance of health professionals in the use of computerized systems is presented in the literature as the main lack of favorability of using the system contributed to the resistance in accepting and understanding how positive its deployment can be.\(^{11}\)

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However, even in facing the impasses such as resistance in accepting systems, technology has become an indispensable tool in the health field. Thus, even if there are difficulties and great challenges to systematize the use of technology by professionals, the institution must have a strong interest in overcoming these difficulties.\(^{12}\)

### Table 3. Correlation of the variables, “Technical support by the information technology team” and “Availability of sufficient computers for use”, with the constructs of perceived usefulness and ease of use

<table>
<thead>
<tr>
<th>Construct issues: perceived usefulness and ease of use</th>
<th>Technical support of IT</th>
<th>Availability of sufficient computers for use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spearman (S)</td>
<td>p-value</td>
</tr>
<tr>
<td>PU 1A. The CS is accessed several times a day by me</td>
<td>0.170561</td>
<td>0.192597</td>
</tr>
<tr>
<td>1B. Using the CS is useful for my functions</td>
<td>0.277417</td>
<td>0.031875</td>
</tr>
<tr>
<td>1C. Using the CS makes my job easier</td>
<td>-0.383044</td>
<td>0.00272</td>
</tr>
<tr>
<td>1D. Using the CS enables me to perform my activities faster</td>
<td>-0.199568</td>
<td>0.126326</td>
</tr>
<tr>
<td>1E. Using the CS increases my work productivity</td>
<td>0.403766</td>
<td>0.001378</td>
</tr>
<tr>
<td>1F. The CS addressed my work process in its entirety</td>
<td>0.322335</td>
<td>0.009501</td>
</tr>
<tr>
<td>EU 2A. Learning to use the CS was easy for me</td>
<td>-0.257725</td>
<td>0.046805</td>
</tr>
<tr>
<td>2B. I do not get confused in performing my activities using the CS</td>
<td>-0.401345</td>
<td>0.001482</td>
</tr>
<tr>
<td>2C. Using the CS is easy, simple, and fast for me</td>
<td>0.350697</td>
<td>0.006011</td>
</tr>
<tr>
<td>2D. The CS has a pleasant visual look/design</td>
<td>0.292009</td>
<td>0.02358</td>
</tr>
<tr>
<td>2E. My interaction with the CS is clear and understandable</td>
<td>0.420666</td>
<td>0.000817</td>
</tr>
<tr>
<td>2F. I easily find what I need in the CS</td>
<td>0.398531</td>
<td>0.001709</td>
</tr>
<tr>
<td>2G. The available features (icons, reports, pages, and screens) are clear and easy to use</td>
<td>0.282438</td>
<td>0.023367</td>
</tr>
</tbody>
</table>

PU - perceived usefulness; CS - computerized system; EU - ease of use
The study also showed that the variables related to initial and training updates presented a correlation only with the ease of use construct, evidencing that the training of the professionals favors and facilitates the use of the system.

Training is fundamental to improve the person’s abilities with technology, favoring the perception of its usefulness and one’s facility to handle the system. Lack of knowledge about the system may lead to non-use of the system. Thus, training generates skills that have a great influence on the use of the systems.\(^{(7)}\)

The adoption of technological innovations requires behavioral and structural changes in work processes, focused on training, and training for future users, with a view to facilitating their use and acceptance, as well as guaranteeing necessary resources.\(^{(13)}\)

The variables related to the technical support resources of the IT team, and the availability of sufficient computers, were shown to be relevant, demonstrating that these factors deserve greater senior management attention, guaranteeing IT technical support and the availability of sufficient machines, aiming to facilitate the managers’ perceptions about using the system.

The lack of available resources hampers the use of computerized systems within health institutions. The institution that uses a computerized system requires compliance with minimum resources, with a view to the effective management of its performance.\(^{(10)}\)

Supporting this logic, another study conducted by informatics nurse specialists in the USA, during the periods of 2004, 2007, and 2011, showed that the unavailability of resources was an important issue for the acceptance of technology.\(^{(11,14)}\) In a literature review which included 12 articles on advantages and disadvantages of computerized system implementation - patient electronic record (PER), in six institutions, the need for large investments in hardware, software, equipment and training of all the professionals involved, as impact factors in the process of technology implementation, were mentioned.\(^{(14)}\)

Given the scenario of difficulties and challenges, it is fundamental that the institution institute actions to guarantee the necessary resources for the use of computerized systems, understanding that their use brings benefits, which overcomes the obstacles, related both to logistics and acceptance by the professionals involved.\(^{(15)}\)

**Conclusion**

The analyzed variables presented a higher correlation with the construct ease of use, when compared to perceived usefulness. The conclusion showed that managers demonstrated satisfaction with the usefulness of the system, but they did not present the same satisfaction with ease of use, due to characteristics of the system, and structural and organizational conditions of the institution.

The study contributes to highlighting the need for educational institutions to include, in the training of health professionals, preparation for using technologies, aiming at training in the use of informatics as a support for management, especially during nursing education, as nurses are the professionals most present in the hospital environment, and consequently those who manage the service. It should also be emphasized that this study may also contribute as a research base for other studies related to the subject, as well as an improvement tool for health managers who seek improvement in health information management and informatics.

**Acknowledgements**

Marlene Cristina dos Santos thanks to the Coordination for the Improvement of Higher Education Personnel (CAPES), for masters scholarship. Prof.ª Marin recognizes the CNPq support. Process No.446221/2014-7; 303882/2013-1.

**Collaborations**

Santos MC & Marin HF contributed to the study design, analysis and data interpretation, relevant critical review of the intellectual content, and final approval of the version to be published.
References


Effectiveness of bag bath on microbial load: clinical trial
Eficácia do banho no leito descartável na carga microbiana: ensaio clínico
Eficacia del baño en cama descartable respecto de la carga microbiana: ensayo clínico

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Silvia Cristina Mangini Bocchi¹
Alessandro Lia Mondelli¹
Luiz Cuadrado Martin¹
Adriana Regina Sobrinho¹

Keywords
Baths; Cross infection; Nursing care; Personal hygiene products; Evaluation of the efficacy-effectiveness of interventions

Abstract
Objective: To assess the effectiveness of bag bath on inpatient skin microbial load.
Methods: This was a parallel, randomized clinical trial with an intervention group (bag bath) and a control group (conventional bed bath), conducted in a public hospital in São Paulo, Brazil, from November 2014 to December 2015. The participants were adult and older inpatients, bedridden and depending on the procedure. The product assessed was Bag Bath®.
Results: The microbial load decreased in the intervention group (20 patients), while it increased significantly (p < 0.001) in the control group (20 patients). The estimated efficacy of the product for bag bath was 90%, compared with 20% for the conventional bed bath.
Conclusion: The product assessed was 4.5 times more effective to decrease the inpatient skin microbial load when compared with the conventional bed bath, suggesting the need for nursing teams to re-evaluate this procedure.

Resumo
Objetivo: Avaliar a eficácia do banho no leito descartável sobre a carga microbiana da pele de pacientes hospitalizados.
Métodos: Ensaió clínico paralelo, randomizado em grupo intervenção (banho no leito descartável) e grupo controle (banho no leito convencional), realizado em Hospital Público de São Paulo, Brasil, de novembro de 2014 a dezembro de 2015. Participaram deste estudo pacientes hospitalizados, adultos e idosos, acamados e dependentes do procedimento. Bag Bath® foi o produto avaliado.
Resultados: A carga microbiana nos grupos de seguimento: intervenção (20 pacientes) reduziu, enquanto a no controle (20 pacientes) aumentou significativamente (p<0,001). Estimou-se em 90% a eficácia do produto para banho no leito descartável, comparada à de 20% do banho no leito convencional.
Conclusão: A eficácia do produto avaliado foi 4,5 vezes maior sobre a carga microbiana da pele de pacientes hospitalizados, quando comparado à do banho no leito convencional, sinalizando à Enfermagem a necessidade de revisar esse procedimento.

Resumen
Objetivo: Evaluar la eficacia del baño en cama descartable respecto de la carga microbiana en la piel de pacientes hospitalizados.
Métodos: Ensayo clínico paralelo, randomizado en grupo intervención (baño en cama descartable) y grupo control (baño en cama convencional), realizado en Hospital Público de São Paulo, Brasil, de noviembre 2014 a diciembre 2015. Participaron pacientes hospitalizados, adultos y ancianos, en cama y dependientes del procedimiento. El producto evaluado fue Bag Bath®.
Resultados: La carga microbiana en los grupos en seguimiento: intervención (20 pacientes) se redujo, mientras que control (20 pacientes) aumentó significativamente (p<0,001). Se estimó la eficacia del producto para baño en cama descartable en 90%, en tanto que fue del 20% en la cama convencional.
Conclusión: La eficacia del producto evaluado fue 4,5 veces mayor sobre la carga microbiana en la piel de pacientes hospitalizados, comparada con baño en cama convencional, determinando Enfermería la necesidad de revisar dicho procedimiento.

Brazilian Clinical Trial Registry (ReBEC): RBR-52pq3b.
Introduction

Bed bath in a hospital setting is an intervention by the nursing staff(1) which promotes patients’ personal hygiene and skin integrity, in addition to preventing diseases.(2) Although the conventional bed bath (CBB) has its benefits,(3) this study supposes that it contributes to spreading microorganisms in the hospital environment, considering scientific evidence produced by microbiological studies proving that there are risks in the objects used, such as bowls,(4-6) soap,(7) and water,(8) in case there is no quality control for their (re)use.

Fortunately, those objects can be substituted by some specially developed and marketed products, such as bag baths (BBs), described by their manufacturers as supplies that contribute to preventing cross-infection and promoting continued patient skin care. However, these products still need to be assessed,(4) given the scarcity of research about their effectiveness on the microbial load on the skin of patients who depend on bed baths.(5)

Considering: (a) the responsibility of the hospital and nurses regarding patient safety against the presumed risk of hospital-acquired infection (HAI), microbiological scientific evidence, and the possibility that objects used for CBBs can be fomites; and (b) the scarcity of scientific evidence on the effectiveness of such marketed products as BBs on inpatient microbial load, we ask: does using BBs instead of CBBs reduce inpatient skin microbial load?

The microbial load on the skin of bedridden inpatients is presumed to be smaller when they receive only BBs than when they receive CBBs; therefore, BBs are considered effective in preventing and reducing skin colonization in inpatients that depend on bed baths.

This study aims to assess the effectiveness of a BB product on these patients’ skin microbial load.

We aim to produce scientific evidence to support nurses’ and hospital administrators’ decisions when choosing the safest option for inpatient bed baths, as well as to causing the CBB procedure to be re-evaluated.

Methods

This is a parallel, randomized clinical trial, approved by the Research Ethics Committee (opinion no. 712,386), Brazilian Clinical Trial Registry (ReBEC) number RBR-52pq3b, conducted in the stroke unit (UAVC in the Portuguese acronym) of a public hospital in the state of São Paulo, Brazil, from November 2014 to December 2015. The participants were adult and older inpatients, bedridden and depending on the nursing intervention bed bath.

The UAVC has 10 beds, with mean monthly occupancy and hospitalization rates of 70% and 25.9% in the studied period, respectively.

The sample consisted of 55 patients randomly divided into two groups: 28 in the control group and 27 in the intervention group, as shown in Figure 1. Calculations considered a margin of error of 10% and a 90% confidence interval(9) for the study population of 363 patients admitted to the UAVC in the studied period, 25% of them dependent on bed bath.

Inclusion criteria were: patients aged ≥ 18 years, hospitalized up to 48 hours before, with impaired physical mobility, bedridden at admission, and classified as highly dependent on nursing (21-26 points), semi-intensive care (27-31 points) or intensive care (> 31 points), according to Fugulin et al’s Grading of Care Complexity (GCAC) scale;(10) without any prior use of antimicrobials when the monitoring began; with preserved skin integrity, and no skin and soft tissue infection (bullous or infectious disease, cellulitis, erysipelas, abscess or eczema) or pressure ulcers, venous ulcers, infectious or neoplastic injuries; who accepted to participate, with an informed consent form signed by the patients or, in case they were not able to sign it, their legal representative.

To allocate participants into groups, 40 cardboard cards were made, 20 of them identified as group A (control) and the other 20 as group B (intervention). All cards were packed in manila envelopes for someone other than the researcher to draw the patients who fulfilled the inclusion criteria. The drawn card was put up above the patient’s bed, showing the nursing professionals which procedure was to
be performed exclusively for five consecutive days. In case the patient came to be excluded from the study, the researcher made a new card with the same procedure and put it in the envelope so it could be drawn again in order to replace that patient.

After allocating patients into groups, the exclusive protocols for each group were followed for five consecutive days. Participants from the control group took CBBs, while the intervention group took BBs (Bag Bath®, US patent 5702992), according to the standard operating procedures (SOP) in annex 1.

Bag Bath® is a package containing eight soft wipes (nonwoven) impregnated with vitamin E-enriched moisturizer, nonionic surfactants, deionized water, and preservatives (biguanide), free of chlorine and other minerals to preserve the pH of the skin acid mantle. A biguanide antiseptic impregnates the fibers of these wipes as a preservative, inhibiting the growth of bacteria, fungi, or yeast inside the package. Resolution RDC no. 29 of the Brazilian National Health Surveillance Agency (ANVISA), of June 1st, 2012, approves the Mercosur technical regulation on the list of permitted substances with preservative action for toiletries, cosmetics and perfumes, including the use of biguanides in concentrations equal to or less than 0.3%.

This same resolution defines preservatives as substances that, when added as ingredients to toiletries, are meant to inhibit the growth of microorganisms during manufacturing and storage, or to protect the product against contamination during use.

In order to ensure that participants received the interventions according to the SOP (Appendix 1), the practical nurses from the UAVC were trained in giving both CBBs and BBs, according to the draw. The unit nurse was also trained to ensure those protocols were being followed in the absence of the researcher, using the SOP as a checklist.

Participant characterization variables were: age (adult/older adult); sex (female/male); Fugulin et al.’s GCAC score (intensive > 31 points, semi-intensive = 27 to 31 points, high dependency = 21 to 26 points); use of antimicrobials after monitoring began (yes/no); skin integrity complications during monitoring, such as ulcers, dermatitis, and others (yes/no).

The outcome variable was the evolution of participant skin microbial load during monitoring of the interventions. To assess this, samples for microbiological analysis were collected from the patients in the control and intervention groups at two times: before the first bath and after the fifth one. A sterile swab with activated charcoal as a transport medium was used for collection. The right lower limb popliteal region was chosen for the collection, covered with a nonwoven sterile fenestrated surgical drape measuring approximately 20 cm² with a 1 cm² fenestration. The popliteal fossa was chosen because it is one of the folds of highest humidity and temperature in the human body, which favors the growth of microorganisms such as gram-negative bacilli, Corynebacterium spp., and S. aureus. Furthermore, it is distant from probes, catheters, and excretory orifices.

To make sample collection easier, the swab was moistened with sterile 0.9% saline, favoring bacterial adherence to the swab.

The material collected was sent to an accredited microbiology laboratory, where microorganisms were seeded in a semiquantitative manner, in quarters, on blood agar and MacConkey agar plates. Gram-positive and gram-negative bacteria, as well as yeast, were investigated. Following seeding on culture media, the swab was introduced into a 5 ml flask containing brain heart infusion (BHI) broth. The plates and flasks were placed in an incubator for 18 to 24 hours at 35 ± 1°C. Subsequently, plates were examined, and those showing growth were considered positive. When there was no plate growth, but the flask with BHI became turbid, the broth was applied on the plates for further investigation. In case of growth, the sample was classified semi-quantitatively, ranging from one to four crosses: (+/++++) = extremely rare, (++/++++) = rare, (+++/++++) = moderate, and (+++/++++) = numerous colonies. Afterwards, the antibiotic sensitivity of the isolated microorganism was tested, using an automated microbiology device (Vitek 2). Results were considered negative after 24 hours without any growth.

To evaluate the evolution of the microbial load in response to both interventions (CBB and BB),
the results of the cultures collected from each participant before the first and after the fifth bath were analyzed. This evolution was classified as: turned negative; remained negative; maintained the initial microbial load; and colonized. Colonization was considered the presence and growth of microorganisms in the second skin culture different from those found in the first sample.

The intervention was considered effective when it: turned negative, remained negative or maintained the initial microbial load. It was considered microbiologically ineffective in case of colonization.

The study was not double-blind, as the researchers and people responsible for the interventions knew which participants received each intervention. However, the results of the cultures were only known by researchers and other participants involved in the study after the data collection was over. The researchers did not take part in the microbiological tests.

In case the protocols were not followed during monitoring, participants were excluded from the sample and replaced, in accordance with the inclusion criteria, until there were 20 patients in each group: control and intervention (Figure 1).

Fifteen patients were excluded in that stage, eight from the control group and seven from the intervention group, due to modification of the SOP for CBB and BB, provided in Annex 1, or interruption of the baths due to unit transfer, hospital discharge, or death of the patient, as shown in figure 1.

The study data were entered to an Excel spreadsheet, the variables were analyzed descriptively using SPSS 12.0 software, and subjected to tests specific to sex (Fisher’s exact test), age (t-test), microbial loads in the first and second skin cultures, and care complexity (chi-square). Multiple logistic regressions were also used to evaluate the relationship between type of bath and positive results in the second culture, adjusting for use of antibiotics.

The bowls and jugs used for CBB at the study local are made of stainless steel, cleaned using water and neutral-pH soap, then dried and disinfected using 70% ethanol.

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**Figure 1.** Flowchart of the procedures for inclusion, allocation, monitoring, and analysis of the study sample
This study was funded mainly by the São Paulo Research Foundation (FAPESP), Process no. 2014/25099-2. The company Commercial Nacional de Produtos Hospitalares Ltda. donated 150 Bag Bath® kits. Neither institution interfered in the conduction of the study at any moment.

Procedures for inclusion, allocation, monitoring and analysis of the study sample are shown in figure 1.

**Results**

The analyses showed homogeneity in the composition of the control (CBB) and intervention (BB) groups, since there were no statistically significant differences for the variables: age (p = 0.267); patient level of dependence regarding the required type of care (p = 435); sex (p = 1.000); and microbial load before the first bath (p = 1.000) (Table 1), with a prevalence of resident flora microorganisms (S. epidermidis, coagulase-negative staphylococci, S. haemolyticus, S. capitis, S. warneri), except for S. aureus, identified in one of the samples.

Women were predominant in the control (70%) and intervention (65%) groups, as well as older adults (80% and 100%, respectively). All participants remained highly dependent on nursing care from selection to the end of monitoring, with semi-intensive and intensive care complexity (Table 1), bedridden and with an indication for bed baths only.

Comparing the results from the first and second skin cultures (Chart 1), we found a statistically significant reduction in the microbial load in the intervention group (BB), while an increase was observed in the control group (p < 0.001) (CBB) (Table 1).

There was a favorable outcome regarding the efficacy of the BB product on participants’ skin microbial load: 60% turned negative, 25% remained negative, 5% maintained the initial microbial load and only 10% showed colonization. As for the control group, whose participants received CBBs, 80% showed colonization and only 20% turned negative (Chart 1).

**Table 1. Number and percentage distribution of variables characterizing the participants of the control (conventional bed bath – CBB) and intervention (bag bath – BB) groups**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Group</th>
<th>Intervention Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>14(70)</td>
<td>13(65)</td>
<td>1.000(*)</td>
</tr>
<tr>
<td>Male</td>
<td>6(30)</td>
<td>7(35)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults (18 to 59 years)</td>
<td>4(20)</td>
<td>0(0)</td>
<td>0.267(†)</td>
</tr>
<tr>
<td>Older adults (≥ 60 years)</td>
<td>16(80)</td>
<td>20(100)</td>
<td></td>
</tr>
<tr>
<td>Microbial load before the first bath (result of the 1st culture).</td>
<td></td>
<td></td>
<td>1.000(‡)</td>
</tr>
<tr>
<td>Culture (+)</td>
<td>15(75)</td>
<td>14(70)</td>
<td></td>
</tr>
<tr>
<td>Culture (-)</td>
<td>5(25)</td>
<td>6(30)</td>
<td></td>
</tr>
<tr>
<td>Microbial load after the fifth bath.</td>
<td></td>
<td></td>
<td>&lt; 0.001(‡)</td>
</tr>
<tr>
<td>Culture (+)</td>
<td>16(80)</td>
<td>3(15)</td>
<td></td>
</tr>
<tr>
<td>Culture (-)</td>
<td>4(20)</td>
<td>17(85)</td>
<td></td>
</tr>
<tr>
<td>Use of antibiotics during monitoring</td>
<td></td>
<td></td>
<td>0.435(‡)</td>
</tr>
<tr>
<td>Yes</td>
<td>10(50)</td>
<td>13(65)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>10(50)</td>
<td>7(35)</td>
<td></td>
</tr>
<tr>
<td>Results of the 2nd culture, with use of antibiotics during monitoring.</td>
<td></td>
<td></td>
<td>0.435(‡)</td>
</tr>
<tr>
<td>Culture (+)</td>
<td>8(80)</td>
<td>2(15)</td>
<td></td>
</tr>
<tr>
<td>Culture (-)</td>
<td>2(20)</td>
<td>11(85)</td>
<td></td>
</tr>
<tr>
<td>Results of the 2nd culture, without use of antibiotics during monitoring.</td>
<td></td>
<td></td>
<td>0.435(‡)</td>
</tr>
<tr>
<td>Culture (+)</td>
<td>8(80)</td>
<td>1(14)</td>
<td></td>
</tr>
<tr>
<td>Culture (-)</td>
<td>2(20)</td>
<td>6(86)</td>
<td></td>
</tr>
<tr>
<td>GCAC§; CBB</td>
<td></td>
<td>(N=100); BB¶ (100)</td>
<td></td>
</tr>
<tr>
<td>High dependency</td>
<td>78(78)</td>
<td>51(51)</td>
<td></td>
</tr>
<tr>
<td>Semi-intensive</td>
<td>19(19)</td>
<td>40(40)</td>
<td></td>
</tr>
<tr>
<td>Intensive</td>
<td>3(3)</td>
<td>9(9)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher’s exact test; †t-test; ‡Chi-square test; §GCAC care complexity score; ||Conventional bed bath; ¶Bag bath
Thus, we estimated a 90% efficacy of BB on inpatient skin microbial load when compared with the control group (CBB), which showed low effectiveness (20%) since 80% of its participants were colonized.

To rule out bias in the interpretation of data, multiple logistic regressions were performed to evaluate the relationship between type of bath and positive results in the second culture, adjusting for the use of antibiotics. This analysis showed that there was no statistically significant association between the participants’ use of antibiotics (p = 0.966) and negative results from the cultures (p < 0.001). The effect of BB was independent of the use of antibiotics during the monitoring of the groups.

**Discussion**

BB (*Bag Bath*) had a 90% estimated efficacy on skin microbial load, while CBB’s was 20%, colonizing 80% of the participants.

Among the colonization cases, we isolated two instances of methicillin-resistant *Staphylococcus aureus* (MRSA), multidrug-resistant bacteria present in the hospital environment and difficult to treat due to their antimicrobial resistance profile.(14)

Thus, this study proves the benefit of the product in the control of inpatient skin microbial load, and it is presumed to be a barrier to hospital microbial spread.

On the other hand, the low effectiveness of CBBs in preventing the spread of microorganisms alerts the nursing field to the need for investment in research to support re-evaluating this procedure, regarding both its execution and the qualitative and quantitative safety of the objects used, so that they do not act as fomites.

These principles guided American nurse Susan M. Skewes and collaborators, responsible for the invention and patenting of Bag Bath® in 1994, after eight years of study and enhancements. The product was designed to abolish the use of basins, water, soap, bath gloves, and towels, in order to prevent cross-contamination between body parts and preserve patient skin integrity.(11)

Skin integrity is preserved because bag bath eliminates the use of soap, especially bar soap, with an alkaline pH (between 10 and 12),(11) which modifies skin pH, which is slightly acid (between 3 and 5) due in part to the secretion of fatty acids and lactic acid by sebaceous glands. These substances contribute to the high resistance of the skin and mucous tunics to microbial invasion.(15,16)

<table>
<thead>
<tr>
<th>First sample — result of culture before the first bath</th>
<th>Second sample — result of culture after the fifth bath</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Group CBB</strong></td>
<td><strong>Intervention Group BB</strong></td>
</tr>
<tr>
<td>S. epidermidis+</td>
<td>S. haemolyticus</td>
</tr>
<tr>
<td>coagulase- negative staphylococci +++</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>S. epidermidis</td>
</tr>
<tr>
<td>S. hominis +</td>
<td>-</td>
</tr>
<tr>
<td>S. haemolyticus</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>S. hominis ++</td>
</tr>
<tr>
<td>-</td>
<td>S. warneri +</td>
</tr>
<tr>
<td>S. hominis +</td>
<td>coagulase-negative staphylococci +</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S. hominis +</td>
<td>-</td>
</tr>
<tr>
<td>S. hominis ++</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S. hominis +++</td>
<td>S. epidermidis +</td>
</tr>
<tr>
<td>S. haemolyticus +++</td>
<td>coagulase-negative staphylococci +</td>
</tr>
<tr>
<td>S. haemolyticus +</td>
<td>S. warneri +</td>
</tr>
<tr>
<td>S. capitis +</td>
<td>S. haemolyticus +</td>
</tr>
<tr>
<td>coagulase-negative staphylococci +++</td>
<td>S. haemolyticus +++</td>
</tr>
<tr>
<td>S. haemolyticus +</td>
<td>S. hominis</td>
</tr>
<tr>
<td>S. hominis ++</td>
<td>S. epidermidis ++</td>
</tr>
<tr>
<td>S. aureus +++</td>
<td>S. epidermidis +</td>
</tr>
</tbody>
</table>

(-) negative; (+) extremely rare; (++) rare; (+++) moderate; (++++) numerous colonies

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**Chart 1.** Assessment of skin microbial load, conventional bed bath (CBB) and bag bath (BB), before the first and after the fifth bath.
We infer that the low effectiveness of CBB for preventing the spread of microorganisms is caused by the limited use of three washcloths and one towel for the whole procedure, as well as the quality of reprocessing and storage of basins, buckets, jugs, and bedpans.

It should be noted that the SOP for the CBB (Annex 1) evaluated in this study was based on references from the literature that are considered basic in nursing professional training. When the SOP was proposed, the nurses at the institution where this study took place noted that some books failed to even estimate the number of washcloths needed. These professionals thought it was prudent to use three washcloths, the first one to wash the body segments and the genitalia, the second one to rinse them, and the third one to wash the back, glutes, and the perianal area. This causes the same rinsing washcloth to be used in the whole bed bath procedure.

Another relevant factor that might have contributed to the low efficacy of the CBB evaluated in this study is related to the objects used, such as basins, buckets, jugs, bedpans, water, soap, and fabric items (washcloths and towel), because they might have acted as fomites.

This inference comes from scientific evidence produced by research analyzing microbiologically the objects employed in the procedure, such as bowls, soap, and water. Our study was prompted by these evidence, as contextualized in the introduction section, with a special concern regarding the lack of care for the quality of these items when (re)using them.

In Brazil, water basins, buckets, jugs and bedpans, are made from stainless steel and reprocessed, while in hospitals from the United States and Canada, the basins are meant to be used individually. Two studies conducted in hospitals from these countries showed bacterial growth in bed bath washbasins for individual use. When they were not cleaned, not dried outdoors, and were used in at least two baths, the percentage was 98%, reduced to 62.2% when cleaned with soap and water.

It is known that a large portion of Brazilian hospitals classifies basins, buckets, jugs, and bedpans as non-critical products, according to an ANVISA Resolution from March 15, 2012. This resolution considers health products as non-critical when they do not come into contact with the patient or only come into contact with intact skin. It recommends that those products undergo at least the process of cleaning.

However, in practice and in the institution where this study took place, these objects are normally used for patients of high complexity of care, who commonly present wounds and invasive devices such as vascular catheters and others, without reclassifying the objects as semi-critical, as recommended by the aforementioned ANVISA resolution.

This resolution considers materials semi-critical when they come into contact with non-intact skin or intact but colonized mucous membranes, requiring high-level disinfection, namely, a physical or chemical process that destroys most microorganisms of semi-critical items, including mycobacteria and fungi, except for a large number of bacterial spores.

In Brazilian hospital health care practice, there is a noticeable lack of care in choosing the decontamination method according to the infection risk potential of products used in bedridden patient hygiene and as aids to excretion (non-critical, semi critical, or critical). In reality, water basins, buckets, jugs, bedpans, and urinals are indiscriminately subjected to low-level disinfection. This disinfection is performed by manually cleaning the object with neutral-pH soap and, after drying, applying 70% ethanol on the whole product, even for items with designs that hinder the applicability of the method, such as bedpans and urinals.

The literature recommends, for reprocessing semi-critical items, high-level disinfection, which can be achieved by automated means that guarantee process uniformity and prevent the contact of the user with chemicals, e.g., thermal washer-disinfectors.

However, this procedure by itself is not sufficient to ensure a safe CBB, since other components of its execution can become fomites, such as water,
Soap, and fabric items (towels, bath gloves/washcloths, among others).

The water from the distribution system can be contaminated by microorganisms introduced through taps or by leaks in the system. A study found that, after these organisms enter the pipeline, they can develop antibiotic- and disinfectant-resistant biofilms. Biofilm is the adherence of microorganisms to a surface, with production of extracellular polymeric substances (EPS), strengthening the adherence to surfaces and cells and forming a matrix that hinders the penetration of antimicrobials into the biofilm cells. Formed near the water point-of-use, the biofilm serves as a microbial repository, constantly sending viable microbes to the water flow. These microorganisms can colonize patients, surfaces, healthcare professionals, medical devices and instruments, utensils and sponges, dialysis machines, showers, taps, etc.

The fabric items used in bed baths (bath gloves, washcloths, and towels) or other components of the hospital linen can also become fomites, as shown by a study that detected strains of methicillin-resistant Staphylococcus aureus (MRSA), viable for six to nine weeks, in blankets. Gram-negative bacterial growth was found even in residues from bar soap holders. Thus, we can assume the same happens with other items used in bed baths, such as buckets, bedpans, trolleys, combs, and bottles of shampoo, moisturizer, and deodorant, i.e., all items that are not of individual use or not disinfected or sterilized effectively, favoring cross-contamination and the transmission of microorganisms.

BB eliminates the need for using many of these items that contribute to intra- and inter-patient cross-contamination, such as water basins, buckets, water, soap, bath gloves, moisturizers, and even towels, since the BB solution naturally evaporates from skin in 30 to 45 seconds, rendering it hydrated and protected without any need for friction or drying.

During an extensive literature review, we found a study comparing the efficacy of CBB and BB (Comfort Bath®) on microbial load, conducted in New York with 40 patients from three intensive care units. However, it found no statistically significant difference between the two types of bath. We infer that this result is not consistent with the outcome of the present study because it assessed the immediate impact of the bath, while we compared the results of microbiological samples before the first and after the fifth bath.

Furthermore, a recently published systematic review concluded there is no research showing evidence of superior quality between BB and CBB, recommending future research on BB, including attention to costs, hygiene, and results related to the interested parties, such as the experiences and perceptions of patients, their families, and the nursing staff.

Thus, this study can be considered a national and international innovation for providing scientific evidence for hospital nurses and administrators to make safe decisions on the adoption of BBs, as well as for flagging the need for nursing professionals to conduct studies to re-evaluate the CBB procedure propagated through nursing textbooks, and finally as a method of evaluating the effectiveness of other BB-like products in the market.

We consider the small sample size one of the limitations of this study, as well as the difficulty in estimating costs and assessing the ability of BB to prevent microorganism spread and to contribute to the control and prevention of HAI.

Finally, this investigation raises the need to conduct further studies, including: (a) clinical trials comparing the efficacy of BB with CBB, but also controlling other variables that were not considered in this study and that supposedly contribute to the spread of microorganisms (water, basins, jugs, fabric items, soap); (b) evaluation of the impact of disposable bed-bath technology on HAI rates and, consequently, on costs, since unknown rates hinder cost estimation; (c) assessment of the effectiveness of disinfection and storage procedures for water basins and other stainless steel products used in hygiene and excretion care; (d) comparison of the effectiveness of other BB products available on the market; (e)
assessment of the benefits of the product for skin integrity.

**Conclusion**

BB had an estimated 90% effectiveness in reducing inpatient skin microbial load when compared with the control group. CBB showed 20% effectiveness, since 80% of the participants were colonized. The 4.5-times higher effectiveness of BB in comparison with CBB in preventing the spread of microorganisms shows the nursing field that there is a need for investment in research to support re-evaluating this procedure regarding its execution, as well as the qualitative and quantitative safety of the objects used, so that they do not act as fomites.

**Acknowledgments**

We thank the São Paulo Research Foundation (FAPESP), Process no. 2014/25099-2, for the main funding of this research, and the company Comercial Nacional de Produtos Hospitalares Ltda. for donating 150 disposable bath bags (Bath Bag).

**Collaborations**

Paulela DC, Bocchi SCM, Mondelli AL, Martin LC, and Sobrinho AR contributed in the development of the project, as well as in all stages of execution, especially for data collection and analysis, formatting of the final report, and approval of the final version of the article to be published.

**References**


Appendix 1. Standard Operating Procedures (SOP) for conventional bed bath (CBB) and for the use of bag bath (BB) adopted at the institution where the study was conducted

<table>
<thead>
<tr>
<th>CBB (Control group)</th>
<th>BB (Intervention group)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials:</strong> latex gloves, 1 disposable gown, disposable adult diaper, 1 bath trolley, 1 bucket, 1 water basin, 1 bar soap, 1 towel, 3 non-sterile washcloths, 1 bottle of body moisturizer, 1 patient gown, 1 pillowcase, 1 fitted sheet and 2 flat sheets for changing the bed, folding screen.</td>
<td>Materials: latex gloves, 1 disposable gown, disposable adult diaper, 1 bath trolley, 1 bag bath, 1 patient gown, 1 pillowcase, 1 fitted sheet and 2 flat sheets for changing the bed, folding screen, hamper.</td>
</tr>
<tr>
<td><strong>Technique:</strong> sanitize your hands; prepare the materials, placing them on the trolley; pull the trolley close to the bed; check patient ID: inform him/her about the procedure; close doors and windows; place folding screen and hamper next to the bed; sanitize your hands; fill the bucket with lukewarm water, distributing it in the basin on the trolley; sanitize your hands; put on the disposable gown and gloves; untuck the bedsheets; remove patient’s gown and protect him/her with a sheet; clean his/her eyes from the inner corner to the outer corner using a gauze washcloth moistened with lukewarm water; wash, rinse and dry his/her face, ears and neck; wash, rinse and dry his/her thorax and abdomen; wash, rinse and dry his/her distal upper limb and axilla; wash, rinse and dry his/her proximal upper limb and axilla; wash, rinse and dry his/her distal lower limb; wash, rinse and dry his/her proximal lower limb; turn the patient to a lateral position, insert the bedpan and reposition the patient in the supine position; wash, rinse and dry the genital area; turn the patient to lateral position and remove the bedpan; keep the patient in lateral decubitus, wash, rinse and dry the dorsal region, buttocks and perianal area; moisturize the dorsal area with the moisturizer; push the damp linen to the middle of the bed and dry the mattress; change your gloves; proceed to making the bed, with the patient in lateral decubitus; turn the patient on the ready side of the bed; remove the dirty laundry and put it in the hamper; finish making the bed; put on the disposable diaper; moisturize the rest of the patient’s skin; put on his/her gown; position the patient on the bed properly; send stainless steel utensils to the sluice room; remove your gloves; sanitize your hands; keep the unit in order; proceed to making nursing notes on the electronic patient record.</td>
<td>Technique: sanitize your hands; prepare the trolley with the materials; heat the bag bath in a microwave oven for 30 seconds; check patient ID: inform him/her about the procedure; close doors and windows; place folding screen and hamper next to the bed; sanitize your hands; put on the disposable gown and gloves; untuck bedsheets; remove patient’s gown and protect him/her with a sheet; clean his/her eyes from the inner corner to the outer corner using a gauze washcloth moistened with lukewarm water; open the bag bath package; remove the first washcloth and clean his/her face, ears, neck, thorax and abdomen; with the second washcloth, clean the distal upper limb and axilla; use the third washcloth to clean the proximal upper limb and axilla; the fourth washcloth should be used to clean the distal lower limb; clean the proximal lower limb with the fifth washcloth; the genital area should be cleaned with the sixth washcloth; turn the patient to lateral position and clean the dorsal region with the seventh washcloth; the eighth washcloth should be used for perianal and gluteal hygiene; push the linen to the middle of the bed; change your gloves; proceed to making the bed, with the patient in lateral decubitus; turn the patient on the ready side of the bed; remove the dirty laundry and put it in the hamper; finish making the bed; put on the disposable diaper; put on his/her gown; position the patient on the bed properly; remove your gloves; sanitize your hands; keep the unit in order; proceed to making nursing notes on the electronic patient record.</td>
</tr>
</tbody>
</table>
Factors associated with alcohol consumption among public maintenance workers
Fatores associados ao consumo de álcool entre trabalhadores públicos da manutenção
Factores asociados al consumo de alcohol entre empleados públicos de mantenimiento

Jaqueline Lemos de Oliveira1
Jacqueline de Souza1

Abstract
Objective: To analyze alcohol consumption among public maintenance workers and identify the associated sociodemographic factors.

Methods: This is a quantitative cross-sectional study conducted with the public maintenance workers of a university in the state of São Paulo, Brazil. Data were collected using a sociodemographic questionnaire and the Alcohol Use Disorders Identification Test (AUDIT).

Results: It was found that 78% of the workers had consumed alcoholic beverages in the last 12 months. Of these workers, 43% were low-risk consumers, 50% were heavy drinkers, and 7% showed a pattern of consumption that is indicative of dependency. Moreover, 54% reported they had four or more drinks and 82% reported they were binge drinkers. The factors associated with consumption were years of schooling, position, gender, income, and skin color, and the consumption of four or more doses was associated with the position of manual laborer.

Conclusion: It was identified that the prevalence of workers with “hazardous use” or “dependence symptoms” was greater (in descriptive terms) than the prevalence identified in a major national survey. Years of schooling was the most relevant demographic factor since the chances of “hazardous use” or “dependence symptoms” increased by 20% as each year of schooling decreased.

Resumo
Objetivo: Analisar o consumo de álcool entre trabalhadores públicos da manutenção e identificar os fatores sociodemográficos associados.

Métodos: Estudo quantitativo transversal, realizado com trabalhadores públicos da manutenção de uma universidade do interior do estado de São Paulo. Foi utilizado um questionário de dados sociodemográficos e o teste para Identificação de Problemas Relacionados ao uso de Álcool (AUDIT).

Resultados: Identificou-se que 78% dos trabalhadores consumiram bebidas alcoólicas nos últimos 12 meses. Dentre os participantes não abstêmios, 43% apresentaram consumo de baixo risco, 50% eram bebedores abusivos e 7% se encontravam no padrão de consumo indicativo de dependência. Destaca-se que 54% referiram o consumo de quatro doses ou mais quando bebiam e 82% dos participantes referiram consumo em binge. Os fatores associados ao consumo foram anos de estudo, função, gênero, renda e cor e o consumo de quatro doses ou mais foi associado com a função de trabalhador braçal.

Conclusão: Identificou-se que a prevalência do consumo de trabalhadores no padrão “consumo abusivo ou provável dependência” foi maior (em termos descritivos) do que a identificada em um dos principais levantamentos nacionais. Os anos de estudo foi o fator sociodemográfico de maior relevância, uma vez que, cada ano a menos de estudo aumentava cerca de 20% as chances de “consumo abusivo ou provável dependência”.

Resumen
Objetivo: Analizar el consumo de alcohol entre trabajadores públicos de mantenimiento e identificar los factores sociodemográficos asociados.

Métodos: Estudio cuantitativo transversal, realizado con trabajadores públicos de mantenimiento de una universidad del interior del estado de São Paulo. Se aplicó cuestionario sociodemográfico y Prueba de Identificación de Trastornos Relacionados con el Consumo de Alcohol (AUDIT).

Resultados: Se identificó que 78% de los trabajadores consumieron alcohol en los últimos 12 meses. Entre los no abstémios, 43% presentaba consumo de bajo riesgo, 50% abusaba de la bebida y 7% estaban registrados como dependientes del alcohol. El 54% refirió consumir 4 dosis o más cuando bebían, 82% informó el consumo en binge. Los factores asociados al consumo fueron años de escolarización, función, género, ingresos y color, y el consumo de 4 o más dosis estuvo asociado a la función de manual laborer.

Conclusión: La prevalencia del consumo en empleados registrados como de “consumo abusivo o probable dependencia” fue mayor (descriptivamente) que la identificada en un importante levantamiento nacional. La escolarización fue el factor sociodemográfico más relevante, tal vez que cada año menos de estudio incrementó aproximadamente 20% las chances de “consumo abusivo o probable dependencia”.

Keywords
Alcohol-related disorders; Alcohol drinking; Workers; Occupational health; Occupational health nursing

Descritores
Trastornos relacionados con el uso de alcohol; Consumo de bebidas alcohólicas; Trabajadores; Saúde do trabalhador; Enfermagem do trabalho

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Factors associated with alcohol consumption among public maintenance workers

Introduction

The consumption of alcohol as a strategy to cope with stress has been associated with some individual attributes, such as a lack of psychosocial resources to appropriately respond to tense situations and suffering.\(^1\) Moreover, alcohol may be consumed to relieve work-related stress due to its pharmacological effects (soothing, exhilarating, stimulating, relaxing, sleep inducer, anesthetic and antiseptic).\(^2\)

Consequently, people engaged in productive activities are increasingly resorting to daily alcohol consumption, which eventually causes decreased productivity, changes in work, interpersonal, social, and family relations, and damage to their health.\(^1,3\)

Several authors have conducted studies to identify professions with working conditions that promote alcohol consumption, such as gravediggers, nurses, truckers, street cleaners, and self-employed workers.\(^3,4,6\) In addition, socially under-privileged activities, work in dry, hot or polluted locations, and positions that cause mental or physical fatigue leading to burnout have been associated with the use of alcohol as relief for tension and suffering.\(^3-6\)

Some researchers have investigated the sociodemographic factors associated with alcohol use among workers;\(^7,8\) however, studies with the specific population of maintenance workers were not identified. Most prior studies on alcoholism among workers\(^4,9-13\) chiefly consider hazardous use or dependence symptoms without specifically analyzing factors such as frequency of consumption or binge drinking. According to the World Health Organization, binge drinking, also known as heavy episodic drinking, is the consumption of high levels (60 grams or more) of alcohol on a single occasion.\(^14\) In view of the specificities of gender in relation to drinking, binge drinking has been characterized as the consumption of four or more doses for women and five or more doses for men on a single occasion.\(^15,16\)

Binge drinking is an important indicator of consumption, regardless of whether the individual meets the criteria of dependency, as it may indicate frequent involvement in health or safety risk situations.

Thus, the aim of this study was to analyze alcohol consumption among public maintenance workers and identify sociodemographic factors associated with the different facets of alcohol consumption (frequency, typical quantity, binge drinking, and pattern).

Methods

This is a quantitative cross-sectional study conducted with the public maintenance workers of a university in the state of São Paulo, Brazil.

The sector has 112 employees. The inclusion criterion was individuals who have been working in the sector for at least one year. The exclusion criterion was workers on holiday, leave or on a trial period during data collection. All the workers met the inclusion criteria and five fell into the criterion for exclusion. All the eligible workers were invited in person and 35 refused to participate in the study, resulting in a sample of 72 workers.

This study observed the ethical requirements specified in resolution 466/2012 of the National Health Council (approval 22074313.5.0000.5393). Data were collected by an undergraduate nursing student trained to apply the instrument, in a private room at the participants’ workplace, at a time scheduled with the head of the sector. The data collection instruments were a sociodemographic questionnaire and the Alcohol Use Disorders Identification Test (AUDIT) validated for use in Brazil.\(^17-19\)

Consumption was analyzed according to the following variables: frequency (based on question one of the AUDIT), typical quantity (based on question two of the AUDIT), binge drinking,\(^14-16\) (considered in this study as five or more doses in a single event with some frequency over the past 12 months, based on question three of the AUDIT), and consumption pattern (from the total score classification of the AUDIT). In this study, on average and according to the previous recommendations\(^17\) one dose was a 350 ml can or glass of beer, a 90 ml glass of wine, a 30 ml dose of distilled beverage, a can or a small bottle of any iced drink; that is, each standard dose contains approximately 10-13 g of alcohol.
The Mann Whitney test was used to analyze the difference in consumption frequency (score of question one - ordinal classification) between the groups, based on the sociodemographic factors - gender, color, marital status, religion, and family income.

Pearson’s chi-squared test and Fisher’s exact test were used to analyze the association between typical quantity, binge drinking, and the sociodemographic variables. In this analysis, the variable typical quantity was divided into “three doses or less” or “more than three doses “and the variable binge drinking was divided into “yes” or “no”.

In relation to age (which showed normal distribution, Kolmogorov-Smirnoff test, p=0.295), the Student’s t-test was used according to the following groups: a) typical quantity (three doses or less/more than three doses), b) binge drinking (yes/no), and c) consumption pattern (low-risk consumption/hazardous use or dependence symptoms).

In relation to the years of study (which did not show normal distribution, Kolmogorov-Smirnoff test, p=0.002) the Mann Whitney test was used considering the groups a) typical quantity, b) binge drinking, and c) consumption pattern.

Additionally, multiple logistic regression analysis was performed using the consumption pattern as outcome variable. The analyzed independent variables were age (years), gender, color, marital status, schooling (years), religion, number of children (up to 1 child/2 or more children), position, and family income. SPSS version 22 was used for the analyses.

Based on the strategy of associations between the studied dimensions (sociodemographic characteristics), three explanatory models of binary logistic regression were drafted to introduce the variables in block form. Only the variables with a statistical significance (p<0.05) in the previous model were transferred to the subsequent model. The exit criterion for all the variables introduced in each model was p<0.20. The final regression model contained only the variables with the greatest statistical significance. The forward stepwise method was adopted to introduce the variables into the models. The level of significance was p<0.05 and the confidence interval (CI) was 95% with calculation of the adjusted odds ratios. The analyses were carried out with the help of a statistician.

Results

As shown in table 1, most of the participants were white, male, manual workers; 43.1% were in the 46 to 55 age group; and 80.6% had a partner. The average (\(\bar{x}\)) years of schooling of the participants was 10 years and the standard deviation (\(\sigma\)) was 3.35 years.

Only 16(22%) workers had been teetotalers in the last 12 months and 56(78%) workers had consumed alcoholic beverages during this period. Figure 1 shows the consumption pattern of the participants. As observed in the Figure, the individuals with a hazardous use pattern (n=28) or with dependency symptoms (n=4) totaled 32(44%).

Table 2 shows typical quantity, binge drinking, consumption pattern, and frequency with the associated sociodemographic factors.

| Table 1. Sociodemographic data of the public maintenance workers (n=72) |
|-----------------------------|---------------|
| Characteristics            | n(%)          |
| Gender                      |               |
| Male                        | 67(93)        |
| Female                      | 5(7)          |
| Age group                   |               |
| 25 to 35 years              | 8(11.1)       |
| 36 to 45 years              | 14(19.4)      |
| 46 to 55 years              | 31(43.1)      |
| 56 to 66 years              | 19(26.4)      |
| Skin color                  |               |
| White                       | 43(59.7)      |
| Brown                       | 22(30.6)      |
| Black                       | 6(8.3)        |
| Olive                       | 1(1.4)        |
| Religion                    |               |
| Catholic                    | 42(58.3)      |
| Evangelical/Protestant      | 15(20.8)      |
| Spiritualist                | 3(4.2)        |
| Other                       | 9(12.5)       |
| None                        |               |
| Marital status              |               |
| With partner                | 58(80.6)      |
| Without partner             | 14(19.4)      |
| Position                    |               |
| Manual laborers             | 62(86.1)      |
| Administrative              | 10(13.9)      |
| Family income (minimum wages)|  |  |
| 1 to 5                      | 28(38.9)      |
| Over 5                      | 44(61.1)      |
Factors associated with alcohol consumption among public maintenance workers

The typical quantity was significantly associated with the workers’ position: 96.7% of those who consumed four or more drinks were manual laborers.

In terms of frequency, a statistically significant difference was identified between workers of different income ranges, suggesting the lower-income individuals drank more often. There was a statistically significant difference in the frequency of consumption between the male and female workers, suggesting the males consumed alcohol more frequently.

**Figure 1. Distribution of public maintenance workers according to the pattern of consumption (n=72)**

**Table 2. Sociodemographic data and the relationship with the alcohol consumption pattern of the public maintenance workers (n=72)**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Typically more than 3 doses</th>
<th>Binge drinking</th>
<th>Hazardous use or dependency symptoms</th>
<th>Frequency (ordinal)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>p-value</td>
<td>n(%)</td>
<td>p-value</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30(42)</td>
<td>0.094</td>
<td>45(63)</td>
<td>0.079</td>
</tr>
<tr>
<td>Female</td>
<td>0(0)</td>
<td>1(1)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Skin color</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>17(24)</td>
<td>0.505</td>
<td>27(38)</td>
<td>0.724</td>
</tr>
<tr>
<td>Black/Brown</td>
<td>13(18)</td>
<td></td>
<td>19(26)</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24(33)</td>
<td>0.481</td>
<td>37(51)</td>
<td>0.189</td>
</tr>
<tr>
<td>No</td>
<td>6(8)</td>
<td>9(13)</td>
<td>6(8)</td>
<td>9(13)</td>
</tr>
<tr>
<td>Income (minimum wages)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 5</td>
<td>11(15)</td>
<td>0.642</td>
<td>17(24)</td>
<td>0.467</td>
</tr>
<tr>
<td>Over 5</td>
<td>19(26)</td>
<td>29(40)</td>
<td>18(25)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>25(35)</td>
<td>0.738</td>
<td>35(49)</td>
<td>0.183</td>
</tr>
<tr>
<td>Without partner</td>
<td>5(7)</td>
<td>11(15)</td>
<td>8(11)</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual laborers</td>
<td>29(40)</td>
<td>0.019</td>
<td>41(57)</td>
<td>0.143</td>
</tr>
<tr>
<td>Administrative</td>
<td>1(1)</td>
<td>5(7)</td>
<td>2(3)</td>
<td>8(19.5)</td>
</tr>
</tbody>
</table>
frequently. A statistically significant difference was also identified in the frequency among white or black/brown-skinned workers, indicating black/brown-skinned workers consumed alcoholic beverages more frequently.

In addition, binge drinking was not associated with any of the studied variables (Table 2).

The variable years of schooling showed a statistically significant difference between workers with different patterns of consumption (χ rank: “low-risk consumption”, 43.3 and “hazardous use or dependence symptoms”, 28; p=0.001). The final logistic regression model also pointed out this variable as a factor associated with the consumption of alcohol; that is, the chances of hazardous use or dependence symptoms increased by 20.4% as each year of schooling decreased (odds ratio=0.796; CI 95% -0.676-0.939; p=0.007; estimated error=0.084). The other variables showed no significant association with the outcome variable.

No age difference was found between the studied groups, namely a) typical quantity (“three doses or less” or “more than three doses”), b) binge drinking (“yes” or “no”), and c) consumption pattern (“low-risk consumption” or “hazardous use or dependence symptoms”).

Discussion

Considering one of the aims of this study was to identify the sociodemographic factors associated with alcohol use, it is understood that several subjective issues may permeate this phenomenon; however, due to the adopted method, these issues were not taken into account. Further studies designed to enter the universe of meanings of public maintenance workers who consume alcohol can shed valuable light on this phenomenon. Some important limitations are the sample size and the numbers of workers who refused to participate in this study. Moreover, the comparison between the sample and the general population was restricted to one of the national surveys, since the different indicators used in the other studies prevented a comparison between the prevalence of alcohol use in adults and patterns of alcohol use.

Nevertheless, this study provides new insight into the various factors associated with alcohol use among workers considering the different facets of this consumption. It also provides specific data on this population of public maintenance workers.

In relation to alcohol use in the studied population, a high prevalence of users (77.8%; n=56) was detected in relation to the average presented in one of the main national surveys (50%).(20) Consequently, the prevalence of workers with “hazardous use or dependence symptoms” was also high (57.1% of users; n=32), almost five times greater than the average presented in a major national survey (17%).(20)

Specifically in relation to the pattern of hazardous use or dependence symptoms, 44% (n=32) of the participants (n=72) fell into this consumption pattern. This percentage is greater than the percentage identified in previous studies among general workers (13.4% for migrant workers in Florida(21) and 13.7% for industry workers in Tanzania(22) and among public officials in Brazil (12.7% for health workers(10) and 13.5% for transport workers). These studies, however, were not specifically designed for maintenance workers. Thus, this result suggests this group is probably more susceptible to risk or dependency.

In this study, 35.7% (n=20) of public maintenance workers drank at least once a week, below the findings of the last national survey, in which 53% of the population consumed alcohol at least once a week.(20) The sample of the national survey covered the entire population, without specificity or schooling, and included teenagers, which evidently interferes with any comparisons between these results.

However, according to the results, 46.4% of the public maintenance workers stated they typically consume three doses or less, and 82.1% (n=46) reported they typically have five or more drinks on a single occasion, characterizing binge drinking, which is considered an important health risk factor and is strongly related to violent behavior.(14-16,23) Binge drinking makes users tolerant to many of the effects of alcohol and may cause problems to their health and work, family, and social relations.(14,16,23)
In this study, an association was detected between typical quantity and position; 96.7% (n=29) of the participants who consumed four or more doses in a single occasion were manual laborers, corroborating previous research.\(^7\)\(^{12}\)\(^{24}\) This behavior can involve specific work-related risks, since one of the responsibilities of these workers is to operate machinery and equipment, which requires a lot of attention and dexterity. In this regard, 20% to 25% of work-related accidents worldwide involve people who are under the influence of alcohol or other drugs. In addition, hazardous alcohol use has been known to reduce productivity and increase absenteeism.\(^8\)

Furthermore, studies on the subjective aspects of alcohol use are critical for planning resolutive awareness strategies. In this regard, some studies have found peer pressure, climatic conditions of the workplace, and even the use as a way to support work, influence the consumption of high doses of alcohol.\(^{25-27}\) Future studies could further investigate these issues.

In terms of frequency, in this study, the workers with a higher income drank less frequently, which diverges from the results of previous studies showing lower frequencies in sectors with lower income.\(^{28,29}\) This result and the evident differences between the risk and protection factors among these workers stress the need to investigate the specific characteristics of the different groups of workers. It should be noted that most studies examined general alcohol use without specifically considering “frequency” as one of the facets of use, resulting in possible divergences in the results comparisons.

Also in relation to frequency, a significant difference was detected between the male and female workers, suggesting male workers consume alcohol more frequently. This result corroborates the findings of previous studies that addressed the variables frequency and quantity together.\(^{10,24,25,30}\)

The higher use of alcohol by men has been pointed out in studies conducted in different regions of the world.\(^{10,21,22,31}\) This tendency is attributed to some cultural and physiological aspects.\(^{31}\) The culture of male domination and the association of alcohol with leisure and relaxation greatly influence the maintenance of this pattern of consumption.\(^{31,32}\)

Moreover, the profile of the analyzed sample is mostly male (93%), and this result may reflect the cultural assumption that maintenance work is mostly masculine. This finding was also identified in previous studies.\(^{13,25}\)

The relationship between workers with a lower risk of consumption and more years of schooling corroborates some previous studies and diverges from others due to differences between the studied populations (men/women; adults/youths; unemployed workers/students, among others) and the categories used to identify schooling among individuals.\(^{28,29,32}\)

In this study, 27.8% of participants had eight years of schooling or less. This result may be the consequence of the greater stability of public university workers in general and the fact that higher education does not imply career progression in some positions. Moreover, manual laborers (the position of most of the study participants) may not feel motivated to improve their education since their work requires less intellectual complexity.

The results also show a higher frequency of consumption among people who stated they were black/brown-skinned, unlike other studies conducted with adult health workers\(^{33,34}\) and transport workers.\(^{11}\) These studies included the item race/color in the sociodemographic analysis but they did not identify an association between this characteristic and alcohol use.\(^{11,33,34}\)

Thus, the result of this study certainly points to a specificity of maintenance workers. Historically, black and brown-skinned people are more susceptible to conditions of socioeconomic vulnerability and alcohol use can become an escape valve for the adversities of everyday life.\(^{35}\) Studies indicate inequalities in health indicators related to race/colour refer to the social determinants of health as an influential factor in the worse health conditions of black people compared to white people.\(^{33}\) Studies that observe this issue are recommended to understand the specificities of this population and its marked
social inequality. Thus, studies with a specific methodological design for these issues are also important to address the problem of alcohol use.

A brief intervention consists of a set of risk level screening practices and actions performed by professionals according to the identified consumption pattern. Furthermore, a brief intervention identifies problems related to alcohol consumption and provides individual counselling to prevent hazardous use and/or encourage treatment.

It is a simple, low cost resource that can be applied by professionals of various fields. In particular, nurses are trained to provide critical health awareness actions and promote the quality of life of the population, which makes them key elements in brief interventions in different settings.

In view of the promising results of prior studies with workers, and the characteristics of alcohol use in the studied sample, a brief intervention is an important tool for nurses in health services and organizational environments to cause shifts in the drinking behavior of these workers.

**Conclusion**

The prevalence of alcohol consumption among the public maintenance workers was greater than the results found in a major national survey. These findings stress the importance of targeted prevention strategies for maintenance workers and promoting studies and alternative techniques to cope with stress. The planning of preventive actions for this group of workers should consider criteria of dependence and binge drinking, which is common even among drinkers who are not in the hazardous use pattern and, according to this study, is highly prevalent among the public maintenance workers. The regular use of screening tools and brief intervention strategies can complement preventive actions in this setting. Future studies should investigate the subjective factors associated with alcohol use, including qualitative data and studies with a research design that enables a deeper analysis of the race/color factor and psychosocial differences related to the position of these workers.

**Collaborations**

Oliveira JL and Souza J declare they contributed with the project design, analysis, and interpretation of data, redaction of the article, a critical review of the intellectual content, and final approval of the version for publication.

**References**

Factors associated with alcohol consumption among public maintenance workers


Patient positioning for spinal anesthesia: construction and validation of a flipchart

Posicionamento do paciente para raquianestesia: construção e validação de álbum seriado
Posicionamiento del paciente para raquianestesia: construcción y validación de álbum seriado

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Joselany Afio Caetano¹

Keywords
Anesthesia, spinal; Patient positioning; Pregnant women; Validation studies; Health education

Descritores
Raquianestesia; Posicionamento do paciente; Gestantes; Estudos de validação; Educação em saúde

Abstract
Objective: Construct and validate an educational flipchart for pregnant women who are to be submitted to a cesarean section on positioning during spinal anesthesia.

Methods: Methodological study involving the elaboration of the flipchart, validation with 22 surgical center nurses, 22 anesthetists and three judges with expertise in communication, followed by the pregnant women’s evaluation of the material. The Level Content Validity Index superior to 0.8 was used for the content validation and the binomial test to verify the level of agreement.

Results: The flipchart consists of 15 pages, with orientations about advantages, disadvantages and positions for the spinal anesthesia. The mean Level Content Validity Index was 0.94 for the nurses, 0.93 for the anesthetists and 0.97 for the judges with expertise in communication. The pregnant women unanimously approved the material.

Conclusion: The flipchart was constructed and validated and nursing can use it with pregnant women who are to be submitted to cesarean section under spinal anesthesia.

Resumo
Objetivo: Construir e validar álbum seriado educativo para gestantes que serão submetidas à cirurgia cesariana, acerca do posicionamento durante a raquianestesia.

Métodos: Estudo metodológico realizado com a elaboração do álbum seriado, validação com 22 enfermeiros de centro cirúrgico, 22 anestesistas e 3 juízes da área de comunicação e posterior avaliação do material por gestantes. Utilizou-se o Level Content Validity Index superior a 0,8 para a validação de conteúdo e o teste binomial para verificação da proporção de concordância.

Resultados: O álbum seriado possui 15 páginas, contém orientações sobre vantagens, desvantagens e posições para a raquianestesia. A média do Level Content Validity Index foi de 0,94 pelos enfermeiros, 0,93 pelos anestesistas e 0,97 pelos juízes da área de comunicação. Houve unanimidade pelas gestantes na aprovação do material.

Conclusão: O álbum seriado foi construído e validado e pode ser utilizado pela enfermagem junto a gestantes que serão submetidas à cesariana sob raquianestesia.

Resumen
Objetivo: Construir y validar álbum seriado educativo para embarazadas que serán sometidas a cirugía cesárea, sobre el posicionamiento durante la raquianestesia.

Métodos: Estudio metodológico con elaboración del álbum seriado, validación con 22 enfermeros de quirófano, 22 anestesiólogos y 3 especialistas en el área de comunicación, con posterior evaluación del material de las embarazadas. Se utilizó el Level Content Validity Index superior a 0,8 para validación del contenido, y el test binomial para verificación de la proporción de concordancia.

Resultados: El álbum seriado tiene 15 páginas, incluye indicaciones sobre ventajas, desventajas y posiciones para la raquianestesia. El promedio del Level Content Validity Index fue de 0,94 para enfermeros, 0,93 para anestesiólogos y 0,97 para especialistas en comunicación. Hubo unanimidad entre las embarazadas para aprobación del material.

Conclusión: El álbum seriado fue elaborado y validado, puede ser utilizado por los enfermeros conjuntamente con las embarazadas que serán sometidas a cesárea bajo raquianestesia.

How to cite:

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Conflicts of interest: the article presents partial results of the ongoing Doctoral dissertation “Educative technology for correct positioning in spinal anesthesia: randomized and controlled clinical trial”, in the Graduate Nursing Program at Universidade Federal do Ceará, Fortaleza, CE, Brazil.
Patient positioning for spinal anesthesia: construction and validation of a flipchart

Introduction

Spinal anesthesia is an anesthetic technique widely used in cesarean sections. Compared to general anesthesia, it causes less neonatal exposure to depressant substances, maintains maternal consciousness, causes less perioperative bleeding and improves the quality of postoperative analgesia.\(^{(1)}\)

Despite the high level of success, complications such as hypotension, postural puncture headache and nerve damage can occur. This may be associated, among other factors, with the inability to properly flex the spine.\(^{(1,2)}\)

The difficulty to maintain appropriate positioning may occur out of fear of anesthesia, common among people undergoing anesthetic-surgical procedures. In pregnant women, obtaining a proper position may be difficult due to the impaired identification of anatomical references and impaired flexing of the spine due to the increased abdominal volume.\(^{(3)}\)

Guidelines on the procedure can help reduce fear and anxiety, and encourage patient collaboration with the positioning for anesthesia. The guidance and assistance for the correct positioning of the patient in the pre-anesthetic phase are nursing care and can take place through the use of educational technologies that facilitate the communication process.\(^{(4)}\)

The relevance of this subject was perceived during the authors’ care routine, motivated by the question of what scientific evidence has been published about the position of the pregnant woman during spinal anesthesia. Therefore, an integrative review was performed which, despite the small number of articles published on the subject, showed that the positioning influences the effect, empowerment and time of onset, besides the pregnant woman’s comfort and hemodynamic parameters, revealing its importance for the perioperative period and obstetric practice.\(^{(5)}\)

These findings reinforced the need to construct educational technology on the subject, whose elaboration should be evidence-based, so that it has valid and understandable content for the target audience and contributes effectively to obstetric clinical practice.

In view of the above, the objective of this study was to construct and validate an educational flipchart for pregnant women who are to be submitted to cesarean section about the positioning during spinal anesthesia.

Methods

Methodological study developed between January and July 2017, in four phases: bibliographic survey; elaboration of flipchart; content and face validation by experts; assessment by target audience.

Bibliographic survey and construction of flipchart

The bibliographic survey considered the literature on the subject, in addition to the findings from the integrative review mentioned earlier.\(^{(5)}\) Based on the scientific evidence identified, the authors constructed the flipchart. The recommendations were followed for the writing and layout of text for educational technologies for people with low education levels.\(^{(6)}\) A designer was hired to design the characters and layout of the album using Adobe Illustrator CS3 and Adobe InDesign CS6.

Expert validation

Three expert groups, of nurses, anesthetists and education professionals, respectively, validated the flipchart, considering the appearance of the images, clarity, importance, practical applicability and relevance of the content.

The following were considered as inclusion criteria for group 1: to have teaching or care experience in a surgical center, where care is taken to assist the patient during spinal anesthesia; for group 2: to have teaching or care experience in anesthesiology, with emphasis on spinal anesthesia for cesarean section.

As it is educational material, three professionals from the education area composed expert group 3, called technicians, included based on their experience in the construction or analysis of educational materials. As an exclusion criterion for the three groups, less than two years of experience in question was considered.
The number of judges in groups 1 and 2 were calculated by the formula: \( n = \frac{Z_{a}^{2} \times P \times (1-P)}{e^{2}} \). The coefficient of \( Z_{a} \) (confidence level) was set at 95%, \( P \) (interrater agreement ratio) 85%, and (accepted difference from expected level) equal to 15%.

The snowball technique was applied to select the judges, which consists of using reference chains to recruit the participants.\(^7\) Thus, we sought indications of teachers at universities in the areas of nursing, medicine and pedagogy, in the regions of Cariri and Fortaleza, Ceará, Brazil. The judges were asked to appoint other professionals. This invitation was forwarded via e-mail. Emails were sent to twenty-four nurses, with two refusals, justified by lack of time to participate. Thirty invitations were forwarded to anesthesiologists with eight absences. The judges from the area of education who were invited agreed to participate in the research. After the experts had confirmed their participation, the material and evaluation instruments were sent by e-mail. The evaluation forms were returned within the required ten-day deadline.

The data collection instrument was submitted to a pilot test, without modifications. This instrument contained the following aspects: clarity, practical relevance and theoretical relevance. For each item, the options to be indicated corresponded to the level of agreement (low, medium, high and very high). There was also room to register suggestions on the educational material. The suggested changes were made and, after a new analysis by the experts, the items were considered valid.

**Evaluation by the target audience**

After the expert validation, ten pregnant women in the third trimester of pregnancy evaluated the flipchart, selected by convenience while awaiting care at a primary health care unit of the Family Health Strategy located in Cariri, a metropolitan region in the South of the State of Ceará, Brazil. Low-risk prenatal care is offered in primary health care.

The pregnant women had access to the printed flipchart and completed an instrument to evaluate the material. For each page of the flipchart, they indicated their level of agreement (little, medium, very and very much) regarding the clarity and comprehension of the images and the text.

**Analysis of results**

The data was organized in Microsoft Excel 2016 through double data entry, aiming to guarantee the reliability of the inserted data. The Content Validity Index was calculated as follows: \( I-CVI \) (Item-level Content Validity Index), interrater agreement level for each item evaluated; \( S-CVI / AVE \) (Scale-level Content Validity Index, Average Calculation Method), proportion of items each expert agreed with; and \( S-CVI \) (Scale-level Content Validity Index), mean \( S-CVI / AVE \). The binomial test was used to verify if the agreement ratio was statistically equal to or greater than the previously defined value to consider the item valid, of 0.80, with a significance level of 5%.

**Ethical aspects**

This study received approval from the Research Ethics Committee of the Regional University of Cariri - URCA, under number 1.837.179.

**Results**

In table 1, the three expert groups’ sociodemographic characteristics are presented.

Regarding the validation process, for 14 of the 22 nurse experts, the \( S-CVI / AVE \) was 1, representing their agreement with all items evaluated. In this group, for one expert, the \( S-CVI / AVE \) was 0.97; for two it was 0.94; for one, 0.88; for two 0.80, and for two it was 0.75. Also, for 14 anesthesia experts, the \( S-CVI / AVE \) was 1. For two, 0.94; for two, 0.91; for two, 0.83; for one, 0.69 and for one, 0.58. The \( S-CVI \) of the mean \( S-CVI / AVE \) of the anesthesia experts was 0.93 while, in the group of nurse experts, it was 0.94.

Table 2 presents consolidated data for the groups of anesthesiology and nurse experts, regarding the agreement frequencies and content validity indices per item.

All communication experts agreed on the 33 items, except one who disagreed on two items in fig-
Table 1. Sociodemographic characteristics of three expert groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Nurses n(%)</th>
<th>Anesthesiologists n(%)</th>
<th>Technical judges n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>22(100)</td>
<td>7(32)</td>
<td>2(67)</td>
</tr>
<tr>
<td>Male</td>
<td>-</td>
<td>15(68)</td>
<td>1(33)</td>
</tr>
<tr>
<td>Age range (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>1(5)</td>
<td>2(9)</td>
<td>-</td>
</tr>
<tr>
<td>31 to 40</td>
<td>11(50)</td>
<td>8(36)</td>
<td>2(67)</td>
</tr>
<tr>
<td>41 to 50</td>
<td>6(27)</td>
<td>4(18)</td>
<td>1(33)</td>
</tr>
<tr>
<td>&gt;50</td>
<td>4(18)</td>
<td>8(36)</td>
<td>-</td>
</tr>
<tr>
<td>Mean / SD</td>
<td>41.7 / 7.8</td>
<td>44.9 / 12.5</td>
<td>39.9 / 3.0</td>
</tr>
</tbody>
</table>

SD – standard deviation

Table 2. Agreement between nurses and anesthetists regarding the items of the flipchart

<table>
<thead>
<tr>
<th>Item</th>
<th>I-CVI*</th>
<th>n(%)**</th>
<th>p-value***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1.00</td>
<td>44(100)</td>
<td>1</td>
</tr>
<tr>
<td>1. Clear, understandable and appropriate language.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>2. Practical importance.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>3. Relevant content.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>Image 1 – What is spinal block.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>4. Clear, understandable and appropriate language.</td>
<td>1</td>
<td>44(100)</td>
<td>1</td>
</tr>
<tr>
<td>5. Practical importance.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>6. Relevant content.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>Script form 1 – Orientations on definition of spinal block</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>7. Clear, understandable and appropriate language.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>8. Practical importance.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>9. Relevant content.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>Image 2 – Spinal block: advantages and disadvantages</td>
<td>0.81</td>
<td>36(81.8)</td>
<td>0.336</td>
</tr>
<tr>
<td>10. Clear, understandable and appropriate language.</td>
<td>0.86</td>
<td>38(86.3)</td>
<td>0.683</td>
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<tr>
<td>11. Practical importance.</td>
<td>0.79</td>
<td>35(79.5)</td>
<td>0.205</td>
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<tr>
<td>12. Relevant content.</td>
<td>0.79</td>
<td>35(79.5)</td>
<td>0.205</td>
</tr>
<tr>
<td>Script form 2 – Spinal block: orientations on advantages and disadvantages</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>13. Clear, understandable and appropriate language.</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>14. Practical importance.</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>15. Relevant content.</td>
<td>0.88</td>
<td>39(88.6)</td>
<td>0.809</td>
</tr>
<tr>
<td>Image 3 – Ideal position for spinal block</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>16. Clear, understandable and appropriate language.</td>
<td>1</td>
<td>44(100)</td>
<td>1</td>
</tr>
<tr>
<td>17. Practical importance.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>18. Relevant content.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>Script form 3 – Orientations on ideal position for spinal block</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>19. Clear, understandable and appropriate language.</td>
<td>1</td>
<td>44(100)</td>
<td>1</td>
</tr>
<tr>
<td>20. Practical importance.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
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<tr>
<td>21. Relevant content.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>Image 4 – Spinal block: main positioning varieties</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>22. Clear, understandable and appropriate language.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>23. Practical importance.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>24. Relevant content.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>Script form 4 – Spinal block: orientations on main positioning varieties</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>25. Clear, understandable and appropriate language.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>26. Practical importance.</td>
<td>0.97</td>
<td>43(97.7)</td>
<td>0.999</td>
</tr>
<tr>
<td>27. Relevant content.</td>
<td>0.95</td>
<td>42(95.4)</td>
<td>0.993</td>
</tr>
<tr>
<td>Image 5 – Benefits of appropriate positioning during spinal block</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>28. Clear, understandable and appropriate language.</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>29. Practical importance.</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
<tr>
<td>30. Relevant content.</td>
<td>0.88</td>
<td>39(88.6)</td>
<td>0.809</td>
</tr>
<tr>
<td>Script form 5 – Orientations on benefits of appropriate positioning during spinal block</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>31. Clear, understandable and appropriate language.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>32. Practical importance.</td>
<td>0.93</td>
<td>41(93.1)</td>
<td>0.970</td>
</tr>
<tr>
<td>33. Relevant content.</td>
<td>0.90</td>
<td>40(90.9)</td>
<td>0.912</td>
</tr>
</tbody>
</table>

*Item Level Content Validity Index; ** Agreement percentage; *** Binomial test

Image 1 of the flipchart displays a pregnant woman and an anesthetist, highlighting the needle and the place where it is inserted, evidencing the intervertebral spaces and the spinal cord, as well as the area related to the body area the anesthetic action covers. In script form 1, it is described how the nurse should guide pregnant women about the definition of spinal anesthesia.

Image 2 represents the pregnant woman and the anesthetist advising on the advantages and disadvantages of spinal anesthesia; this content is described in script form 2. Image 3 shows the pregnant woman with the column bent; script form 3 emphasizes the essential characteristics for appropriate positioning during spinal anesthesia.

In image 4, three main varieties of position the pregnant woman can take are shown. Script form 4 was the guidelines the nurse is to provide during the educational activity. In figure 1, some of the main images of the flipchart are shown.

The nurse and anesthesiology experts suggested 19 adjustments that were made, such as monitoring the pregnant woman, wearing a cap, positioning of the patient's hands on her legs during anesthesia, standardization of terms, less emphasis on complications, among others. After the changes, the flipchart consisted of 15 pages: cover, back cover, presentation, five pages containing the figures and five pages with their respective script forms, references and the final page with the technical file. The items submitted to expert evaluation were the cover, the figures and their respective script forms, which displayed the guidelines the nurse is to provide during the educational activity. In figure 1, some of the main images of the flipchart are shown.
Deals with the anesthetist’s choice, together with the pregnant woman, of one of these positions. Image 5 presents the image of the woman with the baby on her lap and the contents of script form 5 reinforce the benefits of proper positioning during spinal anesthesia.

The pregnant women who evaluated the flipchart were between 19 and 38 years of age, with a mean age of 28.3 years. All were literate, the majority having completed high school (40%) or taking higher education (20%). The women were unanimous on the clarity and relevance of the items in the flipchart. They also unanimously considered all the information important and that the images in the flipchart help to improve the understanding about the subject.

**Discussion**

The lack of studies on the construction and validation of educational technologies to guide pregnant women or other populations about the positioning for spinal anesthesia was a limitation of this study, making it difficult to compare and discuss the results. In addition, the pregnant women who evaluated the material came from a specific region and were users of the Unified Health System, so that the opinions obtained may not represent the reality of pregnant women from other regions or who are users of private health services.

The construction and validation of the flipchart discussed here converges with the program Safe Surgeries Save Lives, established by the World Health Organization (WHO), which proposes that the team uses known methods to prevent damage in the administration of anesthetics, while protecting the patient from pain.\(^8\) It is also in accordance with the guidelines of the Stork Network, established by the Brazilian Unified Health System (SUS), which proposes guaranteeing safety in childbirth and birth care.\(^9\)

The three expert groups almost unanimously accepted the evaluation of the flipchart’s applicability to the perioperative nursing context. This outcome is considered relevant, as educational technology needs to be feasible, in addition to being comprehensible. Corroborating this result, the specialists in the validation study of the educational leaflet on HIV / AIDS judged this material as an excellent complement to the health professionals’ guidance activities on the subject.\(^10\) The result is similar to the validation of the educational leaflet on dietary guidelines to improve the quality of life of adults in Malaysia with I-CVI 0.95.\(^11\)

The perioperative nursing routine includes guidelines for patients, such as those on positioning during anesthesia. In this sense, according to the ex-
The language of the flipchart was considered clear, comprehensible and appropriate. This data is in accordance with a study about the validation of an educational booklet for teachers about first aid at school, which obtained a satisfactory evaluation of the clarity, objectivity and attractiveness of the language. The same result was obtained in the aforementioned study on dietary practices, whose language was judged clear and comprehensible, presenting I-CVI 1.

It is important to emphasize the importance of the language used in educational materials, so that they are clear and understandable to the target audience, and can present practical relevance. Considering that the users of the flipchart are health professionals, the texts of the script forms target these professionals. Thus, even if there is technical language, professionals should explain the content at the level of the target audience’s understanding.

A study conducted in Swedish hospitals to characterize educational materials provided to surgical patients with colorectal cancer identified that 29% of the materials contained difficult language for the target audience. In this sense, it is essential for the target audience to evaluate the educational technologies. An evaluation by expert judges is also fundamental to permit the identification of possible aspects that are incomprehensible.

In this study, the pregnant women evaluated that the flipchart was satisfactory, in line with other studies involving the target audiences, such as the study to validate an educational technology on venous ulcer care, whose participants considered that the material was appropriate. In the validation of an educational leaflet on vertical HIV transmission, the evaluation by the target audience also reached a satisfactory level of agreement.

The pregnant women’s evaluation of images from the flipchart showed unanimity about helping to understand the subject. Other studies have revealed similar results, like in the case of the validation of a flipchart on breastfeeding by postpartum women, who evaluated that the images were clear, comprehensible and relevant.

In educational practice, the use of figures is quite pertinent, as it contributes to the target audience’s understanding regardless of their education level schooling, in addition to making the educational material more attractive.

The evaluation of educational technologies by professionals with experience in evaluating educational materials is important because they have a sharper look on aspects that can influence the learning process. In this sense, the result of this study obtained a satisfactory evaluation, as only one judge disagreed on only one item, not interfering in the general evaluation of the material, with S-CVI 0.97. This data corroborates the study that validated an educational technology for teaching about sexually transmitted diseases, with all items presenting I-CVI 1 in the group of technical experts.

Considering the three groups of expert judges on all items, the flipchart obtained an S-CVI of 0.94 and was considered validated in the content and face validation.

**Conclusion**

The flipchart “Correct positioning of pregnant women for spinal anesthesia” was constructed and submitted to content and face validation by experts and by the target audience. Nurses working at maternity hospitals and obstetric surgical centers can use it as a tool to contribute to the adoption of appropriate and safe positioning during spinal anesthesia for cesarean section. Although the content and face validation of the flipchart indicate the feasibility of its use in nursing practice, its effectiveness needs further investigation by analyzing the pregnant women’s understanding of the knowledge and their respective adoption of an appropriate position during the spinal anesthesia.

**Collaborations**

Pinto SL, Galindo Neto NM, Sampaio LA, Oliveira MF and Caetano JA participated in the conception of the Project, analysis and interpretation of the
data, writing of the article and critical review of the intellectual content, approving its final version.

References


Educational intervention involving young mothers: gaining knowledge on childcare
Intervenção educativa com mães jovens: aquisição de saberes sobre cuidados da criança
Intervención educativa con madres jóvenes: adquisición de saberes sobre cuidados del niño

Fabiane Blanco e Silva¹
Ellen Cristina Gondim²
Nayara Cristina Pereira Henrique³
Luciana Mara Monti Fonseca²
Débora Falleiros de Mello²

Abstract
Objective: Identify the knowledge of young mothers about daily childcare through an educational intervention, in search of support for comprehensive health care.

Methods: Descriptive intervention study, involving 20 mothers between 16 and 25 years of age with children under three years of age, within the coverage area of a family health service. The educational intervention was based on five playful group dynamics, assessed by means of a pre and post-test, addressing themes about nutrition, hygiene, household accident prevention, managing a sick child at home and development in the first three months of the child’s life, before, immediately after the intervention and five months after the interventions.

Results: Using an intragroup educational intervention, in the pretest, the mothers’ knowledge ranged between good and excellent, a part being classified as regular and insufficient on some themes. In the post-test taken immediately after the intervention, the knowledge was classified between good and excellent while, in the post-intervention test, applied five months after the health education, the classifications regular and insufficient return.

Conclusion: The mothers’ knowledge gaining appoints that the educational intervention through games is a satisfactory strategy in health education about child healthcare. Nevertheless, the results suggest that it is important to keep up the educational actions at different times and in different contexts to guarantee the sustainability of knowledge and practices, contributing to comprehensive health care.

Keywords
Child health; Health promotion; Health education; Educational technology

Resumen
Objetivo: Identificar los saberes de las madres jóvenes sobre el cuidado cotidiano del niño a partir de intervención educativa, en busca de subsidios al cuidado integral a salud.

Métodos: Estudio descriptivo e de intervención, desarrollado con 20 madres entre 16 y 25 años de edad con hijos menores de tres años, residentes en el área de influencia de una unidad de salud de la familia. La intervención educativa fue basada en cinco dinámicas grupales lúdicas, con evaluación por medio de pre y pós-teste, abordando temas sobre nutrición, higiene, prevención de accidentes domésticos, manejo del niño enfermo en casa y desarrollo en los primeros tres meses de vida del niño, antes, inmediatamente después de la intervención y cinco meses después de la intervención.

Resultados: Con intervención educativa intragrupal, en el pre-test, los saberes de las madres variaron entre los índices buen y óptimo, e hubo una parcela con clasificaciones regulares e insuficientes en algunos temas. En el post-teste realizado inmediatamente después de la intervención, los saberes fueron clasificados entre buen y óptimo, aunque que no teste post-pós-intervención, aplicado cinco meses después de la educación en salud, los índices regular e insuficiente volvieron a aparecer.

Conclusión: La aquisición de saberes de las madres aporta que la intervención educativa por medio de juegos configura una estrategia satisfactoria en la educación en salud sobre el cuidado a salud del niño. Contudo, los resultados sugieren a importância da continuidade das ações educativas em diversos momentos e contextos para garantir a sustentabilidade dos saberes e práticas, contribuindo para a integralidade do cuidado à saúde.

Keywords
Saúde da criança; Promoção da saúde; Educação en salud; Tecnología educacional

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³Conflicts of interest: the authors declare that there are no potential conflicts of interest in this study.
Introduction

Childcare receives strong influence from the context the child lives in, in which vulnerable environments can entail more or less difficulties for each child to reach its full potential.\(^{(1)}\)

In the growth and development process, the child needs positive interactions, because the construction of brain circuits is greatly influenced by early life experiences and directly mediated by the quality of socio-affective relationships, mainly by the interactions established with their caregivers.\(^{(1-3)}\)

With a view to the longitudinality of care, it is indispensable to identify the environmental conditions favorable to the full development of children and to get to know the caregivers’ understanding of the children’s characteristics and needs,\(^{(4)}\) aiming for comprehensive care with a guarantee of health promotion, disease prevention and full development.

Thus, health promotion allied with health education represents a resource through which the scientifically produced knowledge in health, mediated by professionals, is presented and discussed with people, with a view to the construction of autonomy, understanding of the health-disease process and its conditioning factors and the adoption of healthy health habits and conducts.\(^{(5)}\)

Thus, health education turns into a promising possibility to cope with problems, understanding difficulties and seeking to meet the health needs of mothers and their families to provide high-quality childcare.

Interaction between mothers and health professionals can offer health benefits by sharing experiences and knowledge and encouraging healthy life habits, essential for the protection and promotion of child health,\(^{(6)}\) with contributions from professionals for mothers and fathers to serve as active participants in childcare.\(^{(7)}\)

The nurse in primary health care plays a fundamental role in the development of maternal and family skills, based on the accomplishment of health education activities, providing means for the subjects to rethink, learn and choose to provide safe care to their children. Motherhood for young mothers may present itself as a unique situation and, in certain circumstances, may assume different meanings and contours.\(^{(6,7)}\)

In the field of health, there are countless educational practices that use games to facilitate the assimilation of content, with freer routes, in which the production of the participants’ senses and meanings is privileged, with a view to promoting the subjects’ protagonist role, critical-reflexive thinking and the construction of knowledge, supported by playfulness and interaction.\(^{(8)}\)

This study aimed to identify the knowledge of young mothers about daily childcare based on an educational intervention, in search of support for comprehensive health care.

Methods

A descriptive intervention research was undertaken on the evaluation of a pre and post-test, applied before and after educational intervention activities, guided by the themes of the booklet entitled “Any Time is Time to Care”.\(^{(9)}\)

The study was carried out in a medium-sized Brazilian city, involving 20 mothers aged 16 to 25 years, within the coverage area of a family health service (USF), which serves a population of about 3,800 people, predominantly young, with families living in precarious conditions and a considerable number of children under the age of three years. The inclusion criteria were: age of mothers between 12 and 25 years; have children up to three years of age; registered and monitored at USF; participate in the moments of the educational intervention. Exclusion criteria were: interruption of child health monitoring and address change beyond the scope of the USF.

In total, the data collection took six months, in two stages. In the first stage, during one month, the group educational activities were carried out, in which the 20 mothers were divided into four groups with five members each. For each group, two meetings were held taking four hours each, with an interval for snacks and monitors to care for and play with the participants’ children. At the
Educational intervention involving young mothers: gaining knowledge on childcare

first meeting of each group, before the educational activity, the researcher applied the pre-test (before the intervention) and, at the end of the second meeting of each group, post-test I (immediately after the intervention). The first educational activities, during the first meeting, involved the themes breastfeeding, infant feeding, hygiene and disease prevention. In the second meeting, with the same group, the topics covered were prevention of household accidents and child development. The same occurred in the other groups. In total, eight meetings were held. In the second stage, five months after the first meeting, home visits were made to each participant, which represented a differential of this study, re-encountering the researcher after the educational intervention itself. During the home visits, dialogues were established with the mothers about the care for the child and post-test II was applied.

The three applications of the tests were guided by the same script, containing 20 questions the researchers had elaborated, who departed from the subjects addressed in the educational intervention, guided by the booklet “Any Time is Time to Care”. (9)

The educational interventions were carried out through games and each proposed game involved the reflection on a theme. As for breastfeeding and feeding the child, the proposal involved conversations with the mothers and each received two signs, one with the drawing of a figure of a smiling face and the other with a figure of a sad face. The dynamics included the use of figures to express and tell their experiences about breastfeeding and feeding their children, seeking to discuss the difficulties and facilities.

With regard to hygiene care, a memory game dynamics was used. Ten cards were provided, five of which contained a drawing related to poor hygiene (eating food without hand hygiene, without brushing the teeth, playing in the sand barefoot and close to animals that live on the street, not cleaning the yard, and lack of hygiene and cleaning of the scalp and hair), and the other five cards related to a childhood illness (diarrhea, geographic larvae, cavities, scalp parasites, and vector-borne diseases). In the game, through dialogue and exchange of ideas, the mothers linked the cards that showed a relation between lack of hygiene and a corresponding illness.

Regarding daily care when children become ill, a dynamic was used showing three children’s drawings, similar to situations of cold/flu, diarrhea and fever. Departing from each figure, the mothers participated in conversations related to the following inquiries: In the first years of life, do we need more care and attention to the health and safety of the child? How do you identify when your children get sick? What care do you usually take at home? Have your children ever had diarrhea, respiratory problems or fever, and how did home-based care happen? Thus, reflections and exchanges of experiences were encouraged.

With regard to accident prevention, a traffic light game was used, consisting of figures containing a child’s drawing, at different ages, showing a risk of an accident, and cards with a colored circle in red (high risk), yellow (medium risk) and green (low risk). Each mother received a picture (drawing of a baby lying in an unprotected crib and susceptible to falling) and the purpose was to put one of the three figures of colored circles on top. The group talks were intended to reflect on the vulnerable situations the child may be subject to in relation to the stage of his/her development. The other figures showed situations of possible accidents involving suffocation, burns, intoxication and drowning.

As for the theme about the child’s daily learning, a dynamic similar to the game Pictionary was used. Each mother received a part containing a drawing, focusing on professions. The mothers participated in the activity, some mimicry what the drawing represented and others trying to guess, in an acting game. They talked about how the children learn.

At the end of each playful activity, the doubts were solved and other subjects were addressed: the need to play and dialogue with the baby and the child, sphincter control, cuddle and sleep routine, reading stimuli for the baby and child, up-to-date vaccination, punishment, and setting limits.
After completing the tests (pre, post I and post II), the hits per theme were added up and classified according to the concepts: insufficient (up to 24% correct), regular (25% to 49% correct), good (50% to 74% correct answers) and excellent (75% to 100% correct answers), similar to another study.\(^{(10)}\)

This research received approval from the Research Ethics Committee, with CAAE opinion 44624815.4.0000.5393, respecting the ethical precepts set forth in Resolution 466/12, including the use of a free and informed consent term and an consent term.

**Results**

The results describe the correct answers and concepts obtained in the pretest (before the intervention), post-test I (immediately after the intervention) and post-test II (five months after the intervention), translating the young mothers’ knowledge synthesis resulting from the application of an educational intervention.

Figure 1, the young mothers’ knowledge synthesis on the themes addressed during the meetings before the educational dynamics is displayed.

Overall, the participants’ knowledge ranged between good and excellent. Nevertheless, the knowledge of a small part of the mothers on the themes about breastfeeding and feeding, disease prevention and child learning was classified as regular. One insufficient classification was found, concerning the prevention of accidents in childhood.

After the educational intervention, the mothers answered the same script and their knowledge gaining changed, as shown in figure 2.

The results of post-test I show that the classifications ranged between good and excellent on all themes addressed, particularly disease prevention, which only showed excellent classifications.

Five months after the educational intervention, the researcher again contacted the study participants and applied the same script for post-test II, during home visits, as shown in figure 3.

The results of post-test II show a predominance of correct answers, with classifications ranging between good and excellent for the five themes addressed. Nevertheless, there was one insufficient classification for themes related to breastfeeding and feeding and regular and insufficient classifications for the theme child learning.

---

**Figure 1. Mothers’ knowledge in pretest about childcare**
Discussion

In this study, young mothers’ knowledge is shown, based on educational practices with themes inherent in daily childcare at home, which facilitated the assimilation of content in a playful and interactive way.

The application of the pre-intervention test prior to the educational games presupposes the valuation of the mothers’ background knowledge on the subject to be discussed. While the analysis of the post-intervention test result suggests the effectiveness of the educational intervention, it can also reveal the increase or not of the involved participants’ level of knowledge. In this study, the acquisition of the mothers’ knowledge in the post-intervention test reveals that the educational practice developed through games was more proximally satisfactory, with good and excellent concepts for all the topics addressed. This result is in line with other health studies that use the same resource to evaluate the participants’ knowledge acquisition. (10-12)

Games have been studied in several areas of knowledge, as they have didactic and educational objectives, can be adopted or adapted to improve, support or promote the learning processes, favoring the construction of knowledge and permitting individual decision making. In addition, games permit
entertainment with motivating, stimulating, innovative, illustrative and playful strategies.\(^{12,13}\)

In this study, the participants’ performance may be related to the development process of each game dynamics, with the researcher’s leadership in establishing the conversation and stimulating the exchange of information about the child’s care at home with the mothers, generating possibilities to reinvent humanized and shared modes of care. Thus, the participants’ dialogues and reflections were a useful way for them to develop and acquire knowledge about the health care of their children.

It is important to point out the relevance of nurses’ actions in educational practices for the sake of comprehensive health. The professional should be sensitive to the subject’s learning needs and able to look at the singularities in the educational process, and provide a favorable and motivating environment.\(^{14}\)

Positive aspects in the conduct of the games and in the mothers’ performance in this research, who obtained good and excellent classifications, express that the application of the educational activity suggests a problem-solving ability regarding the expansion of knowledge, but does not permit assertions as to behavioral changes.

The result of the application of the post-intervention test applied five months after the educational activity is a differential component proposed in this study and revealed that, over time, the mothers’ knowledge about some subjects was again classified as regular and insufficient. These results suggest the need for continued health education actions, offered at various times, strengthening nursing care through home visits, nursing consultations, educational groups, among others.

The education of individuals and families in general includes educational techniques through printed and audiovisual materials, demonstrations and verbal instructions.\(^{15}\) In this study, the dialogue with verbal instruction was focused on as a component of health education and recommendations for the mothers.

Verbal education of patients and family members is important and an approach that takes into account learning styles, literacy and culture is also relevant to apply clear communication and to obtain learning assessment, relevant to the professionals’ skills, available time and training, emphasizing that health education does not necessarily lead to behavioral changes.\(^{15}\) In general, patients and their families receive a variety of information about their health and usually need to make important decisions, having to deal with barriers and difficulties, and the nurse is of great value to assess the patients’ learning needs, their readiness to learn and the different ways in which they learn.\(^{16}\) Thus, there is a need for further research on how to document and quantify the patients’ understanding and retention of verbal instructions.\(^{15}\)

In this study, the reports on the experiences of the groups of young mothers and the reflections on their own actions were an effective way for the mothers to rethink themes and develop knowledge about the health care of their children.

Nursing care with a focus on health education needs to increase the dialogue, the guidelines with different repertoires, different explanatory strategies and stimuli to the subjects, so that the knowledge is expanded and gains sustainability. In this sense, it is relevant for the professional to try not to exhaust the conversation on a particular subject on a single occasion. Thus, the resumption of aspects, issues, interests and motivations is fundamental to enhance attention to the identification on the organization of the environment, regularity of care, ways in which the family handles constant supervision of the child’s activities and good parental practices, dialoguing and reinforcing important themes for health and human development. These results suggest the importance of continued educational actions at different moments and in different contexts.

Nurses are considered the professionals with more opportunities to assess the educational needs of patients and to prepare them for learning,\(^{17}\) contributing to advances in the access to and quality of health care.

Conclusion

The pre-intervention test was applied to identify and value the prior knowledge of young mothers in relation to the contents about childcare at home. The
result of the application of the post-intervention test revealed the increase in the knowledge of young mothers, reaffirming that the use of educational games is an effective and satisfactory resource for health education demands. Through games with intragroup intervention, the educational activity favored group sharing among the mothers, with reflections, exchange of information and experiences that contributed to knowledge gaining about child health care. The study provides support to rethink and structure educational interventions developed by nursing professionals, with practices guided by knowledge applied in a creative and playful way, seeking to promote top-level comprehensive health care and knowledge sharing.

Collaborations

Blanco e Silva F, Gondim EC, Henrique NCP, Fonseca LMM and Mello DF contributed to the conception of the project, data analysis and interpretation, relevant critical review of the intellectual content and approval of the final version for publication.

References


Clinical profile of long-living elderly at an intensive care unit
Perfil clínico de longevos em uma unidade de terapia intensiva

Objective: To identify the clinical and sociodemographic profile of long-living elderly at an intensive care unit.

Methods: Cross-sectional, retrospective and quantitative study, developed at ICU of a private hospital in Salvador. The participants were long-living elderly admitted between January 2014 and December 2015, hospitalized for 24 hours or longer. The data were collected in the patients' electronic charts. The data collection instrument was constructed based on the information contained mainly in the nursing history, aiming to register the sociodemographic and clinical variables. The collected data were typed into Excel 2010 and analyzed using statistical software. For the sake of comparison between the variables, Pearson’s \( \chi^2 \) test was used. The results are presented in tables and their discussion rests on evidence about the theme.

Results: Among the 252 long-living elderly identified, 64.3% were female. 63.9% came from the emergency service, a statistically significant factor if related to mortality, and 91.3% of them presented comorbidities, particularly non-transmissible chronic conditions, mainly cardiovascular conditions (81.7%) and diabetes mellitus (32.9%). Non-infectious manifestations (84.5%) were the main causes of hospitalization. Upon admission, 71.0% were hydrated, 65.1% eutrophic, 39.3% breathing environmental air spontaneously, 57.5% with spontaneous diuresis and 77.0% with intact skin. The prevailing length of hospitalization was between 11 and 20 days (24.6%), with death as the main outcome (51.6%).

Conclusion: Even in favorable conditions upon admission, the duration of hospitalization at the unit was long and the percentage of deaths was high.

How to cite:
Clinical profile of long-living elderly at an intensive care unit

Introduction

The increased life expectancy and aging have generated changes in the age structure of the Brazilian population, with a growing increase in the number of elderly people. This fact also promotes an increase in these people’s demand for hospitalization, including in intensive care units (ICU), where health professionals have perceived this reality. (1)

Regarding longevity, a prospective study carried out over a period of 30 months at a general ICU of Hospital do Servidor Público Estadual de São Paulo, published in 2016, identified that 18.2% of the patients admitted in the period were 80 years old or older. Among these, ICU mortality was 26.3%, in hospital 45.7% and 48.4% in the 180 days after hospital admission. (1) In Canada, a study published in 2015, conducted in 22 hospitals, monitored the long-living elderly after 24 hours of hospitalization and for a period of 12 months, identified a mortality rate of 14% in the ICU, 26% in the hospital and 44% at home after hospital discharge. (3)

Prolonged hospitalization time may result in loss of autonomy, unfavorable prognosis and increased mortality of the long-living elderly, and may be related to the occurrence of adverse events. Thus, a careful evaluation of the hospitalization decision and the appropriate time for discharge is recommended, in order to guarantee the minimum length of stay, reduction of complications and hospital costs. (4)

In this sense, health policies that encourage professional qualification focused on elderly care are essential for health professionals, especially nurses, to provide quality care. Therefore, it is important that the multiprofessional team pays attention to the profile of the long-living elderly hospitalized in the ICU, so that they can discover and attend to their particularities that demand specific care, necessary to avoid iatrogenic and unfavorable clinical outcomes.

In view of these findings, the aim of the study was to identify the clinical and sociodemographic profile of the elderly in an intensive care unit.

Methods

Type of research design

Cross-sectional, retrospective study with a quantitative approach.

Place of study

Held in the ICU of a private hospital in Salvador. This unit has 30 intensive care beds for adult/elderly patients, with clinical and surgical demands. It was chosen due to the large number of long-living elderly admitted.

Sample

A convenience sample was used. The participants were all 80-year-old or older persons admitted to the ICU between January 1st 2014 and December 31st 2015 and who remained in this unit for a period equal to or longer than 24 hours.

Data collection and analysis

The data were collected through the search in the patients’ charts between May and June 2016. At the place of study, the medical records are electronic. Thus, access and data collection were performed using the service password of one of the researchers, with the service’s authorization. She is a resident student in the Intensive Care Nursing Residency Program of the Nursing School at Universidade Federal da Bahia and was carrying out practical activities at the Unit.

Initially, all charts of the people hospitalized in the unit were selected in the time interval of interest. Subsequently, the charts of patients aged 80 years or older, completed until the date of admission, were selected. Then, the inclusion criterion related to the length of stay longer than or equal to 24 hours was applied. The exclusion criterion was to remove from the study those elderly with incomplete medical records, without records such as the nursing history, registration form and most recent medical evolution. Thus, a total population of 252 long-living individuals who met the inclusion criteria was obtained, all of whom had complete records, and no exclusions were required.
The collection instrument was previously constructed, based on the information contained in the nursing history of the institution, the patient registration form and most recent medical evolution (outcome record), to identify the sociodemographic variables: gender, age, city of origin, origin and religion; and clinical variables: comorbidities, reasons for hospitalization, suspected diagnosis, general health status upon admission, days of hospitalization and outcome. The variable diagnosis upon admission was not used, but rather a suspected diagnosis, as the nursing history, completed upon admission, did not yet identify a closed medical diagnosis.

The collected data were entered into a database created for this purpose, using Excel 2010, and later imported and analyzed in statistical software IBM SPSS Statistics 14. For the sake of comparison between the variables, Pearson’s χ² test was used, considering statistically significant differences at 5%. The presentation of the results was organized in tables and their discussion was supported by scientific evidence on the subject.

The project received the Hospital’s agreement and approval from the Research Ethics Committee of the Nursing School at Universidade Federal da Bahia, under opinion 1.519.251. Exemption from the Free and Informed Consent Term was requested due to the collection of secondary data. To ensure patients’ anonymity, the forms were identified using numbers and the data were treated in groups.

Results

Of the 1,099 patients admitted to the ICU from January 1st 2014 until December 31st 2015, 732 (66.6%) were older than 60 years. Of these, 252 (34.4%) were long-living and participated in the study. The sociodemographic characteristics of this population are shown in table 1.

It could be observed that the majority of the long-living hospitalized patients were women who lived in the capital of the State, Salvador, were self-declared Catholic and came from the emergency unit. A considerable part was transferred from other health institutions, both from the capital and from other cities.

When associated with the outcome, it is observed that the origin of these patients was the only statistically significant characteristic, and revealed that the long-living elderly who were admitted through the emergency service before admission to the ICU passed away.

In table 2, the distribution of the elderly is displayed according to the presence of one or more comorbidities/problems and the main ones, as well as the causes of hospitalization and the suspected diagnoses upon admission, as well as their relation with the outcome.

An important percentage of the long-living (91.3%) had comorbidities. Chronic noncommunicable diseases (CNCD) were the most frequent, with high prevalence of systemic arterial hypertension (90.8%), diabetes mellitus (DM) and neoplasias, in that order. Among the comorbidities related to neurological diseases, the sequelae of stroke and some cases of dementia prevailed, especially Alzheimer dementia, present in 82.1% of the long-living patients with this condition.

Regarding the main causes of hospitalization, the majority was related to noninfectious occurrences, especially lower level of consciousness in 36.6%
and dyspnea in 20.2% of these individuals. The main manifestation of the causes of hospitalization related to infectious occurrences was hyperthermia. It is noteworthy that, in 8.7% of the nursing records investigated, this data was not completed.

Other causes of hospitalization were less frequent, such as abdominal pain, precordial pain, vomiting, syncope, intestinal hemorrhage, hematemesis and fall from one’s own height, as well as seizures and diarrhea.

Among the suspected diagnoses, the most frequent were also related to non-infectious causes, present in half of the elderly, with evidence of stroke in 32.5% and AMI in 10.3%, followed by infectious causes, sepsis in 41.3% of the patients, respiratory infection in 34.9% and septic shock in 23.8%. No records of suspected diagnosis were found in 25% of the charts, probably because the nursing history was completed before recording this data.

The association between these clinical variables and the outcome did not reveal statistical significance.

The data collected on the health conditions are presented in Table 3. Most of the long-living patients were hospitalized in the ICU for a period between 11 and 20 days, followed by an inpatient period of more than 20 days. More than half of them, at the time of admission, were considered normal weight, hydrated, without skin lesions, lucid, oriented and breathing spontaneously. Little more than half of the individuals studied died. Hydration status, neurological status, ventilation status and skin condi-
Discussion

In the study, there was a predominance of long-living hospitalized women, which may reflect their longer life expectancy in relation to men, following the worldwide trend of feminization of old age.\(^6\)

This result, however, diverges from other studies that indicate a prevalence of hospitalizations of male patients, justified by the fact that men are more negligent with their health and are at greater risk of clinical decompensation.\(^2,7-9\)

Most of the long-living patients came to the ICU for the emergency unit. Their most prevalent comorbidities were hypertension, diabetes and other heart diseases, with hypertension and diabetes being present in the majority. In addition, the cause of hospitalization was associated, to a great extent, with non-infectious manifestations, mainly lower consciousness level and dyspnea, followed by cough. Similar data were observed in another study, where the main organ dysfunctions presented the long-living patients presented upon admission to the ICU were respiratory (86.5%), cardiac (48.7%), neurological (40.1%), renal (28.1%) and infectious (21.7%).\(^10\)

The presence and number of comorbidities found was not related to the outcome death, which was also observed in another study conducted in Rio Grande do Norte with elderly people hospitalized in the ICU.\(^11\) In that study, it was observed that comorbidities and chronic diseases were not related to the survival of the elderly in survival studies with less than 30 days of follow-up; the presence of comorbidities was associated with unfavorable outcomes in the hospitalized elderly though when the follow-up was longer than 30 days.

CNCDs are a group of pathologies of multifactorial origins that develop throughout life and are long lasting, causing complications that may lead to the need for hospitalization of the elderly. Estimates by the World Health Organization appoint CNCDs as a severe public health problem, responsible for a total of 38 million deaths worldwide in 2012.\(^12\) In Brazil, approximately 74.0% of deaths are associated to CNCDs.\(^13,14\)

Regarding the suspected diagnosis at the time of admission, those related to noninfectious causes prevailed, especially stroke and AMI. With regard to suspected diagnoses related to infectious causes, sepsis, respiratory infection and septic shock were highlighted in this order. One study pointed out coronary diseases as the most prevalent diagnosis in the elderly between 80 and 85 years admitted to the ICU. Most of these, like in the present study, also entered through the emergency service.\(^2\) In addition, in another study, sepsis had an impact on the mortality of elderly patients hospitalized at an ICU, regardless of the length of hospital stay.\(^11\)

Hence, it is observed that the clinical demands of the long-living patients in the ICU stand out in comparison to the surgical demands, possibly due to the worsening of chronic problems. In one study, it was identified that acute clinical injuries and age over 80 years are associated with mortality in survival studies with follow-up of less than 30 days, and that situations such as lower consciousness level, use of mechanical ventilation and respiratory diseases are factors that worsen this outcome.\(^11\)

The mortality of the long-living patients in this study was high (51.6%), and may also be related to the high rates of origin from the emergency unit, with prolonged hospitalization. A large part (24.6%) remained hospitalized for between 11 and 20 days, a longer period when compared to other studies.\(^11\)

A study that investigated the factors related to the occurrence of adverse events in critically ill elderly people, although it did not relate these to the long-living age group, identified an average of 5.06 days of ICU hospitalization in those who did not suffer adverse events, against 10.62 days in those who did; for those who presented moderate to severe cases of these events, the mortality rate was 38.3%.\(^4\)

In this study, even the long-living patients mostly presented a good general health condition at the time of admission, with intact skin, diuresis and spontaneous ventilation, preserved lucidity and ori-
entation; the length of hospital stay was significant, making them more fragile, dependent and vulnerable to the unfavorable outcome. In this sense, the study points out the need to remove the patient from the ICU as soon as possible and safely, in order to avoid damage. Therefore, however, all hospital staff needs training to provide high-quality care to these people, aiming to preserve their autonomy.

The presence of some risk factors for mortality was observed, such as the use of mechanical ventilation, present in 19.4% of the elderly. Regarding the functional and cognitive status pre-hospitalization, the former data was not found in the medical records and, regarding cognition, 27.0% were not responsive upon admission. With regard to mortality, unfavorable outcomes were associated with long-living elderly coming from the emergency service, with compromised neurological condition, ventilation status, skin condition and hydration upon admission, in line with other authors.\(^{(1,2,15)}\)

In view of the above, it is necessary to discuss the criteria for the hospitalization of elderly in the ICU, in view of the professionals’ difficulties to establish safe criteria for the admission of these people, and in view of continuing uncertainties as to when the benefit is greater than the risk.\(^{(11)}\) In this respect, after favorable clinical trials, the use of the APACHE II score, which evaluates 12 physiological parameters, has been indicated as a gold standard to predict mortality in elderly patients.\(^{(2)}\)

In addition, it is necessary to review the instruments used to approach the elderly, as important data for their monitoring and prognosis are not being evaluated or valued, such as prior functional status, marital status, context of life, among others, relevant to plan the care and discharge.

The absence of this information from the chart was a limitation of the study, which made it difficult to achieve a more detailed analysis of the length of hospital stay and the outcome. Regarding the prior functional status, for example, authors show its relation with morbidity and mortality in hospitalized elderly, representing important data to be collected upon admission.\(^{(16)}\)

### Conclusion

The clinical and demographic profile of the long-living elderly at the time of admission to the ICU showed that most patients presented good general health status, with intact skin, diuresis and spontaneous ventilation, lucidity and orientation. The hospitalization time was longer than that reported in the literature though, which may have influenced the unfavorable outcome, as more than half of the studied population died during hospitalization at the unit. In addition, the hydration status, neurological status, ventilation status and skin condition, as well as the elderly who were admitted to the ICU through the emergency service were factors that presented a statistically significant association with the outcome death. We hope that, through this study, the long-living elderly admitted to the ICU can gain more visibility, stimulating discussions about this subject, which are still lacking in our scenario. Prior knowledge on the personal, clinical, physical and functional conditions of these people is important, so that health professionals can weigh the risk-benefit of an ICU stay, and direct the care with higher quality and less risk.

### Collaborations

Silva JBVB, Pedreira LC, Santos JLP, Barros CSMA and David RAR contributed to the conception of the Project, data collection and base, analysis and interpretation of the data, writing of the article and final approval of the version for publication.

### References


Use of alcohol among elderly people attending Primary Health Care
O uso de álcool entre idosos atendidos na Atenção Primária à Saúde
Uso de alcohol entre ancianos atendidos en Atención Primaria de Salud

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Marcus Vinicius de Lima Garcia¹
Sara Pinto Barbosa¹
Deivson Wendell da Costa Lima¹

Abstract
Objective: To verify the pattern of alcohol use among the elderly attending a primary healthcare service and to describe the relationship between the use of alcohol and sociodemographic variables.

Methods: Observational, cross-sectional, quantitative study with elderly patients from a primary healthcare service in a city in the interior of São Paulo/Brazil. Of 750 elderly subjects in total, 112 were included, 85 were interviewed, and the final sample was comprised of 25 subjects who self-reported alcohol use. Data of the study were obtained through interviews for application of the following instruments: sociodemographic questionnaire, Michigan Alcoholism Screening Test–Geriatric Version (MAST-G), and Alcohol Use Disorders Identification Test (AUDIT).

Results: There was predominance of the female gender (56%), retirees (56%), mean age was 69.8 years (60–83 years range), educational level of 7.4 years of study, on average, ranging from no education to complete higher education. Fifteen elderly (60%) scored between 8 and 14 points in the AUDIT, which is risk use, and 10 (40%) had a score of 7 points, considered low risk use. In MAST-G, the 25 patients (100%) suggest the presence of problems related to alcohol use.

Conclusion: The study contributes to the situation of alcohol use by the elderly. This is based on the existence of a greater number of women at risk in the population studied. These issues should be considered in health professionals’ approach and investigations with a view to adopting strategies for the global and humanized treatment of elderly alcohol users.

Keywords
Primary health care; Health of the elderly; Alcohol-related disorders; Aged; Drug users

Descritores
Atenção primária à saúde; Saúde do idoso; Transtornos relacionados ao uso de álcool; Idoso; Usuários de drogas

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**Introduction**

The phenomenon of aging affects the entire population and is a dynamic, progressive and diverse process arising from biological, social, psychic and technological changes that have occurred throughout the life course. Changes that constitute and influence aging are not linear, and directly affect the functioning and well-being of each elderly individual. Although the elderly present several health problems over time, old age does not imply dependence and use of health care.\(^1\)

The increasing population aging shows a certain ambiguity. On the one hand, it denotes a better quality of life and a consequent increase in life expectancy. On the other hand, it increases the occurrence of noncommunicable chronic diseases (NCDs), a category that includes the abusive use of alcohol.\(^2,3\)

Seniors have the lowest rate of alcohol use compared to young and adult individuals. However, this age group is more vulnerable to harmful actions resulting from alcohol use. This happens because of physiological changes, among which the increase of body fat, the reduction of muscle mass and water of the tissues, and the reduction of hepatic metabolism. These are all characteristic of the natural aging process and potentiate the alcohol effect on the body. As a consequence of these physiological changes, blood alcohol levels tend to remain high in elderly users, who begin to present adverse conditions resulting of their drinking, for example, the occurrence of eating problems and falls related to use of alcohol.\(^4-6\)

Alcohol consumption is considered acceptable if not exceeding 15 doses per week for men and 10 doses per week for women. One serving is equivalent to approximately 350 ml of beer, 150 ml of wine or 40 ml of a distilled beverage. For the elderly, the recommendation is to not exceed one daily dose of alcohol, and the weekly dose should not exceed seven. Clinical and social complications related to alcohol use in the elderly can occur even without increasing the consumption one was accustomed to, because of the aforementioned physiological changes and the actual organ depletion.\(^4,7\)

There is still a great difficulty in identifying the elderly alcohol user given the lack of research tools for health professionals, and the denial of the problem of alcohol use in this age group by friends, caregivers and family members. In addition, there are few recent studies on estimated trends in alcohol use among the elderly, especially regarding their use pattern and relationship with sociodemographic variables. This problem reinforces the need for studies in the community in order to know the elderly who use alcohol, and implement preventive and pertinent therapeutic actions in the context of public health.\(^1,7\)

The purpose of this study was to verify the pattern of alcohol use among the elderly attending a Primary Health Care service and to describe the relationship between the use of this substance and sociodemographic variables.

**Methods**

This is an observational, cross-sectional study with a quantitative approach. It was conducted with elderly users of a Family Health Strategy (Portuguese acronym: ESF) community service called the Family Health Center (Portuguese acronym: NSF), and located in the western area of the city of Ribeirão Preto (state of São Paulo). According to information provided by Community Health Agents (Portuguese acronym: ACS), this NSF covers a population of approximately 2,924 inhabitants, of which 750 are elderly users of care services at the unit. In the study was used a convenience sample.\(^8\)

The following inclusion criteria were adopted: subjects registered in the health system, aged 60 years or older, users of alcohol with an AUDIT score ≥ 7 and MAST-G score ≥ 5, and who have had contact with alcohol at least once in life. The exclusion criterion was showing visible difficulties with understanding and self-expression.

The AUDIT instrument was developed by the World Health Organization in 1982 for tracking the harmful use of alcohol. It has ten questions that identify four different patterns of alcohol consumption according to the score, namely: low risk use (0
Use of alcohol among elderly people attending Primary Health Care

to 7 points), risk use (8 to 15 points), harmful use (15 to 19 points) and probable dependence (more than 20 points). In Brazil, the AUDIT had two validated versions in 1999, and an adaptation in 2005, which was used in this study. This version identified the same cutoff point as the previous version, with 91.8% sensitivity and 62.3% specificity. (9)

The MAST-G instrument was developed in 1971. In 1992, it was adapted for the elderly with the objective of evaluating the use and dependence of alcohol in the elderly. As a gold standard of validation, was used the Diagnostic and Statistical Manual of Mental Disorders (DSM-III). The MAST-G is an instrument containing 24 questions with dichotomous responses, where each positive response equals 1 point. When the score is equal to or greater than 5, it indicates a problem related to the use of alcohol. In this study, was used the translated and cross-cultural validated version, which evaluated the instrument reliability by calculating the Cronbach’s alpha. For the general population, alpha was 0.787, and for the population of users, alpha was 0.753, both considered good indices. (10)

The choice of the two instruments is justified because the AUDIT demonstrated greater precision for identifying problems related to use of alcohol at early stages (risk and harmful) for males and females. The MAST-G showed better performance in the detection of alcohol abuse and dependence among the elderly. (9,10)

A third instrument was developed by researchers of the area by requesting sociodemographic data such as gender, age, professional occupation, years of study, family income and health problems related to self-reported diseases.

According to individual registration forms filled out by community health agents, 112 elderly people reported having used alcohol at least once in their lives. These elderly individuals were contacted by telephone and 85 accepted to receive the researcher’s visit at home, when was given an explanation about the project and the request for their participation. After their acceptance, was presented the informed consent form (IC) and their signature was requested. The AUDIT and MAST-G were applied during home visits. After obtaining the tests results, the final sample resulted in 25 elderly individuals who self-reported alcohol use.

Data collection was performed between August and November 2016 through the application of instruments. Data were double-typed in a database spreadsheet in Microsoft Excel 2016, and descriptive statistical analysis was performed. The Statistical Package for the Social Sciences (SPSS), version 23.0 was used for statistical analysis.

The non-parametric Mann-Whitney test was used to test the difference in AUDIT and MAST-G mean scores with respect to gender. The non-parametric Kruskal-Wallis test was used to test the difference in relation to age group and professional occupation. To test the correlation between the AUDIT and MAST-G scores with income and educational level (years of study), was used the Spearman correlation coefficient. In all tests was adopted the significance level of 5% ($\alpha = 0.05$).

This study followed the ethical precepts of Resolution 466/12 of the National Health Council and is part of a project to identify demands of mental health, alcohol and other drugs in Primary Health Care. This study was sent to the Ethics and Research Committee of the School of Nursing of Ribeirão Preto - University of São Paulo, which issued the opinion number 1.524.858 on May 2nd 2016, and approved it under number CAAE 51699615.1.0000.5393.

Results

The sociodemographic characteristics related to the pattern of alcohol use of the interviewed elderly are shown in table 1 and table 2 by taking into account the use of AUDIT and MAST-G instruments, respectively. There was gender similarity among the 25 elderly people who reported using alcohol, but women predominated (56%). Age range was 60-86 years, mean age of 69.8 years, and there was predominance of the age group of 60-69 years (56%).

Different educational levels were identified, ranging from no educational level to complete higher education, with a mean of 7.4 years of study. Regarding professional occupation, 56% of respon-
dents were retired, 80% lived with a relative, and 60% had family income of one to three minimum wages. There was no significant correlation between AUDIT and MAST-G scores with variables of gender, occupation and age.

With regard to health problems, 64% of the elderly interviewed reported having baseline diseases. The most cited were systemic arterial hypertension (SAH) (36% or 9 elderly), followed by diabetes mellitus (DM) (20% or 5 elderly), dyslipidemia and high cholesterol in 4% (1 elderly).

Table 1. Description of sociodemographic characteristics of the elderly (n=25) and their relationship with the AUDIT

<table>
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<td>70-79 years</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>7.83</td>
<td>7.5</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>80-86 years</td>
<td>5</td>
<td>7</td>
<td>13</td>
<td>8.80</td>
<td>8.0</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Description of sociodemographic characteristics of the elderly (n=25) and their relationship with the MAST-G

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Variable</th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Median</th>
<th>Standard deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAST-G</td>
<td>Female</td>
<td>14</td>
<td>5</td>
<td>15</td>
<td>8.71</td>
<td>8.0</td>
<td>2.97</td>
<td>0.659</td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>5</td>
<td>13</td>
<td>8.09</td>
<td>8.0</td>
<td>2.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>11</td>
<td>5</td>
<td>15</td>
<td>8.18</td>
<td>8.0</td>
<td>3.02</td>
<td>0.581</td>
<td></td>
</tr>
<tr>
<td>Retiree</td>
<td>14</td>
<td>6</td>
<td>13</td>
<td>8.64</td>
<td>8.0</td>
<td>2.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAST-G</td>
<td>60-69 years</td>
<td>14</td>
<td>5</td>
<td>15</td>
<td>8.07</td>
<td>7.5</td>
<td>2.84</td>
<td>0.435</td>
</tr>
<tr>
<td>70-79 years</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>9.33</td>
<td>9.0</td>
<td>2.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80-86 years</td>
<td>5</td>
<td>6</td>
<td>13</td>
<td>8.40</td>
<td>7.0</td>
<td>3.05</td>
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<td></td>
</tr>
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</table>

Table 3. Distribution of the elderly (n=25) for the classification of instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>p-value</th>
<th>p(%)</th>
<th>p-value</th>
<th>p(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10 (40)</td>
<td>5</td>
<td>3 (12)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>8 (32)</td>
<td>6</td>
<td>3 (12)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1 (4)</td>
<td>7</td>
<td>5 (20)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2 (8)</td>
<td>8</td>
<td>4 (16)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1 (4)</td>
<td>9</td>
<td>1 (8)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1 (4)</td>
<td>10</td>
<td>1 (2)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2 (8)</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>- (-)</td>
<td>13</td>
<td>2 (8)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>- (-)</td>
<td>15</td>
<td>1 (4)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
<td>Total</td>
<td>25 (100)</td>
<td></td>
</tr>
</tbody>
</table>

In the present study, there was a significant correlation between AUDIT and MAST-G (r=0.65; p=0.0003). However, there was no correlation between the AUDIT and family income (r=0.116; p=0.581) and years of study (R = -0.31, p = 0.883), and neither there was a positive correlation between the MAST-G and family income (r=-0.003, p=0.988) and years of study (r=0.012, p=0.953).

Discussion

An international systematic review study has shown that research on alcohol use among the elderly is relatively scarce in many countries. However, it has brought evidence of significantly different patterns of use from one country to another. (11)

Among all elderly individuals contacted in the present study, 85 service users (70.6%) did not report use or use of risk, and 25 elderly people (29.4% of the interviewees) reached scores above the cutoff point in the AUDIT classification. Of these, 10 (40.0%) scored an alcohol consumption equal to 7 points, which characterized them as low risk consumers (7 doses per week). However, the fact that 15 (60.0%) elderly individuals were classified as risk use (8 to 15 doses per week) was concerning. The application of MAST-G demonstrated that everyone could fit into this drinking pattern.

The results found in this study have some similarities with a study performed in Bosnia and Herzegovina with elderly people over 60 years of age attending primary health care, in which 78% of the sample did not consume alcohol and 22% were...
current drinkers, of which 59% reported risk use of alcohol. Of the elderly drinkers, 27% were women in the age group between 60 and 69 years. They following data corroborate with the present study: similar percentage of non-users, increased alcohol use among women, and agreement about data on the group of risk users in relation to the low risk group.\(^{(12)}\)

A national study on demographic trends conducted in the United States covered the period 2005-2014 and used the data/year grouped in pairs from a total sample of approximately 60,000 people aged over 50 years. It measured the prevalence in usage patterns in the last year, last month, binge drinking in the last month, and alcohol-related disorders (abuse or dependence according to DSM-IV). This assessment revealed an increase in the prevalence of alcohol use in the period of study. In turn, this fact demonstrated the elderly continue with potentially unhealthy drinking patterns, and there was an alarming increase among the female elderly, with reports of binge drinking pattern or diagnoses of alcohol-related disorders.\(^{(13)}\)

The similarities with the present study are focused on the predominance of women (53.5%) in relation to men (46.6%), and the fact that female elderly report alcohol use patterns of high risk or low risk. This is an alert to monitor consumption among this group of women in order that it does not become an emerging public health problem, as the American authors of the aforementioned study have mentioned in relation to their country.\(^{(13)}\)

In Brazil, data from the study conducted in the city of Porto Alegre by the Geriatrics and Gerontology Institute corroborate the presented results in relation to the predominance of women (although with a higher percentage than the current study) and age group. That study had 832 elderly participants, of which 592 (71.2%) were women and 240 (28.8%) were men. The most prevalent age group was 60 to 69 years old, with a total of 373 (44.8%) elderly individuals (38.3% were aged between 70 and 79 years, and 16.8% were 80 years or older). Data are not comparable regarding the use of alcohol, since another instrument (Self-Reporting Questionnaire - SRQ-A) and a scale constructed by the authors were used for measurement in that study. However, there were more ‘alcoholic’ men (11.7%) than women (0.7%).\(^{(14)}\)

In order to measure the prevalence of alcohol abuse, a survey was conducted with use of a scale developed by the authors in residents of the city of Pelotas (state of Rio Grande do Sul). The sample included 1,968 individuals, of which 229 were aged between 60 and 69 years old, of both sexes, and 19.6% of these elderly individuals were alcohol abusers, that is, above seven doses per week.\(^{(15)}\)

In spite of samples, different methodologies and gender-related specificities, the studies indicate the elderly are consuming alcohol in unhealthy patterns in Brazil too, and suggest more focused actions in this group.\(^{(14,15)}\)

The difference of consumption pattern between genders seems to be an important area of study given the influence of sociocultural factors. The use of alcohol among women is increasing in line with the economic development and changes in gender roles.\(^{(16)}\)

Regardless of the presence of possible negative sociocultural factors related to female drinking that were not the subject of research evaluation, women seemed to be greater users in the present study. Perhaps because they predominated in number or by the possible influence of an alcohol-user partner with whom they shared consumption. The conclusion was that such peculiarities may have influenced women’s consumption pattern.

In general, few women who use alcohol seek help treatment at health services, probably because of the stigma and health professionals’ difficulties with recognizing the risk pattern of alcohol use in this population.\(^{(16)}\)

Regarding educational level, there was a mixed distribution among participants in the present study, with a wide variation in years of study as follows: six (24%) elderly with no education, six (24%) elderly with incomplete primary education, and six (24%) elderly with complete higher education (16 years of study). Thus, there was no direct association between educational level (years of study) and alcohol consumption. The American study showed the greater prevalence of alcohol-re-
lated disorders among those with higher educational levels. However, this data is not corroborated by another study conducted in the state of Rio Grande do Sul (Brazil), in which educational level was related to alcohol use, and 4.7% of interviewees with only 1st grade were alcoholics.\(^{(13,15)}\)

In relation to monthly family income, most respondents (60%) in the present study had an income of one to three salaries (R$ 880/month was the minimum salary in the study period, 2016), followed by 40% of respondents with income equal to or greater than four minimum wages. Thus, no significant differentiation in consumption was identified according to the elderly’s family income. On the other hand, the previously reported study states a close relationship between poverty and several behaviors that affect health, since it observed 4.9% of the elderly with a monthly family income of up to two wages (R$ 545, current value in 2011) were ‘alcoholics’. These data are in line with another population study conducted in the city of Pelotas/RS between 1999 and 2000.\(^{(15)}\)

In relation to professional occupation, most respondents were retirees (56% of the elderly), followed by 16% of elderly women who reported being house workers. The rest of the sample reported having an active life and exercising professional activities in different areas. In this regard, retirement is a factor that makes the elderly vulnerable and more likely to intensify less healthy habits such as abusive alcohol consumption, possibly given the available time and lack of healthy activities.\(^{(4)}\)

Regarding the presence of diseases, the majority of alcohol users had some pathology, and it is noteworthy that this data was self-reported, and not verified in medical records. The most commonly reported diseases were DM and SAH. In old age, pharmacokinetic and pharmacodynamic aspects of alcohol differ from those of younger subjects because of the decrease in metabolism, body mass and water levels. Therefore, the elderly are more prone to effects of intoxication, since alcohol remains in the circulation for a longer time, which can exacerbate pre-existing chronic conditions, such as DM and SAH.\(^{(17)}\)

Excessive alcohol consumption, besides increasing systolic blood pressure (SBP) by 2.9 mmHg, is one of the causes of resistance to antihypertensive therapy and greater cardiovascular morbidity and mortality. It has been estimated that an alcohol consumption higher than 30g/day may increase the risk of hypertension. Moreover, individuals who consume alcohol daily are three times more likely to be hypertensive than individuals who do not consume alcohol.\(^{(18-21)}\)

In relation to DM, alcohol consumption above three doses/day can increase its incidence by 43%, besides accentuating nutritional problems, convulsions, hypoglycemia, neuropathy and other chronic complications.\(^{(22,23)}\)

These data suggest the sample of the present study is highly vulnerable to hypertension and DM, since 60% of the elderly had an AUDIT score ≥ 8, i.e., alcohol consumption classified as at risk. At the same time, there are arguments that chronic conditions such as DM and SAH may affect usage behavior by influencing changes in smoking or alcohol consumption. This fact may have happened among the study participants, as they self-reported the use of alcohol and had some chronic illness.\(^{(24)}\)

In summary, in this study was found the risk pattern of alcohol consumption, as demonstrated by the MAST-G instrument, and the risk and low risk pattern according to the AUDIT. These data are in line with a study in which the risk pattern of drinking was placed as the most prevalent among the elderly. It must be considered that such a pattern brings damages to these individuals’ health and predisposes them to vulnerabilities.\(^{(17)}\)

As studies with the elderly and use of alcohol lack standardization with regard to the screening and measurement instruments used and origin services of the sample population, it is difficult to compare the results. Nevertheless, the present study has some similarities in terms of alcohol use with national and international studies.

The following aspects are some limitations of the study: the sample is from a single health service, of convenience, consumption is self-reported, and there were no inquiries about binge drinking, since the most recent literature warns of the increase in this consumption pattern among the elderly. Another limitation is that the sample comes from...
Use of alcohol among elderly people attending Primary Health Care

a service with a large predominance of women, and this may also have influenced such a result.

Conclusion

This study contributes to stimulate new and more in-depth research on the elderly group in the community context in Primary Care. There was an important contingent of elderly alcohol users, highlighting the existence of more women in situations of risk. Even more concerning was the fact that not only the sample reported the use of alcohol, but also mentioned the presence of other clinical pathologies. This poses as an alert to nurses and other health professionals in care to the elderly in community services.

The use of alcohol among elderly users of health services in follow-up treatment in the community must be tracked, with a view to planning and implementing strategies for a global and humanized treatment. This shows the concern of the service and professionals in relation to users by investigating their needs, and meets the proposal of prevention and promotion of Primary Care.

Health professionals, especially nurses, must investigate the use of psychoactive substances, especially alcohol, in a systematic and non-judgmental way. This way, they will provide individualized and quality assistance to the elderly, and help to reduce prejudice in society regarding the use of these substances.

Collaborations

Luis MAV, Garcia MVL, Barbosa SP and Lima DWC contributed with the project design, data interpretation, article writing, critical review of the article content, and approval of the final version to be published.

References


Treatment adherence of chronic kidney disease patients on hemodialysis
Adesão de portadores de doença renal crônica em hemodiálise ao tratamento estabelecido
Adhesión de enfermos de insuficiencia renal crónica al tratamiento establecido

Silvia Maria de Sá Basílio Lins
Josete Luzia Leite (In memoriam)
Simone de Godoy
Joyce Martins Arimatea Branco Tavares
Ronilson Gonçalves Rocha
Frances Valéria Costa e Silva

Abstract
Objective: Identify the adherence behavior of chronic kidney patients to the four dimensions of the therapeutic regimen: hemodialysis, medication use, diet and fluid restriction.
Methods: Descriptive and cross-sectional study with a quantitative approach, developed at two hemodialysis centers in the State of Rio de Janeiro. To collect the data, an evaluation questionnaire was used on the adherence of the chronic kidney patient on hemodialysis. The data were analyzed through simple descriptive statistics.
Results: The domain with the highest percentage of non-adherent patients was hemodialysis with 32%. Medication was the domain with the highest percentage of adherent patients, 93.6%.
Conclusion: Treatment adherence is a dynamics behavior and, therefore, needs constant monitoring.

Resumo
Objetivo: Identificar o comportamento de adesão do paciente renal crônico ao regime terapêutico nas suas quatro dimensões: hemodiálise uso de medicamentos, dieta e restrição hídrica.
Métodos: Estudo descritivo, transversal com abordagem quantitativa, desenvolvido em dois centros de hemodiálise no Estado do Rio de Janeiro. Para coleta de dados, foi utilizado um questionário de avaliação sobre a adesão do portador de doença renal crônica em hemodiálise. Os dados foram analisados por meio de estatística descritiva simples.
Resultados: O domínio que apresentou maior percentual de pacientes não aderentes foi a hemodiálise, com 32%. Já a medicamento foi o domínio com maior percentual de pacientes aderentes, 93,6%.
Conclusão: A adesão à terapêutica é um comportamento dinâmico e, como tal, merece monitorização constante.

Resumen
Objetivo: Identificar el comportamiento de adherencia del paciente renal crónico al régimen terapéutico en sus cuatro dimensiones: hemodiálisis, uso de medicamentos, dieta y restricción hídrica.
Métodos: Estudio descriptivo, transversal, con abordaje cuantitativo, desarrollado en dos centros de hemodiálisis del Estado de Río de Janeiro. Los datos recogidos mediante cuestionario de evaluación sobre la adherencia del enfermo de insuficiencia renal crónica en hemodiálisis. Estos datos fueron analizados por estadística descriptiva simple.
Resultados: El dominio que presentó mayor porcentaje de pacientes no adherentes fue la hemodiálisis, con 32%. La medicación fue el dominio con mayor porcentaje de pacientes adherentes, con 93.6%.
Conclusión: La adherencia a la terapéutica es un comportamiento dinámico. Siendo esa su condición, merece recibir monitoreo constante.

Descritores
Cooperación del paciente; Cumplimiento de la medicación; Insuficiencia renal crónica; Diálisis renal

Keywords
Patient compliance; Medication adherence; Renal insufficiency; Chronic renal dialysis

Descritores
Cooperação do paciente; Adesão à medicação; Insuficiência renal crônica; Diálise renal

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Introduction

Chronic kidney disease (CKD) has different impacts in the lives of the ill patients and their relatives. The irreversible nature of the disease requires that they transform their routines in order to adapt and, in addition, adhere to the new treatment established.\(^1\) The progressive loss of the kidney function stages the disease, ranging from stage one, characterized by the initial renal injury without any symptoms, to stage five, when the use of renal replacement therapy (RRT) is necessary.

The treatment of stage-five CKD requires a complex therapeutic regimen, including hemodialysis and a strict regimen of medication, diet and fluid control. These four treatment aspects are inseparable and constitute the pillars of treatment, directly influencing the morbidity and mortality rates. Non-adherence to any of these variables negatively affects the patient’s quality of life and the health costs.\(^2\)

According to the 2015 census by the Brazilian Society of Nephrology (BSN), the prevalence and incidence rates of CKD correspond to 544 and 180 per million inhabitants, respectively. In Brazil, 726 RRT centers exist, with an estimated number of 111,303 patients undergoing RRT, 84% of them funded by the Unified Health System (SUS). Of this total, 92.8% are submitted to hemodialysis (HD).\(^3\)

Within the spectrum of high-complexity health care, that is, for patients already on hemodialysis, the objectives of the care policy for renal patients are to increase the patient’s survival, reduce the morbidity, improve the quality of life and guarantee the treatment access, continuity and possibility of a kidney transplant.\(^4\) To achieve these objectives, guaranteeing the patient’s treatment adherence is fundamental.

According to the National Kidney Foundation, the ideal hemodialysis dose has been established, maintaining a Kt/V (urea clearance) rate superior to 1.2, at a frequency of three times per week, with each session taking four hours.\(^5\) Hence, to achieve a lower mortality rate, research needs to be focused on other areas, including patient adherence to the proposed therapeutic regimen.

Therefore, this research aims to identify chronic kidney patients’ treatment adherence behavior.

Methods

A descriptive and cross-sectional study with a quantitative approach was developed at two hemodialysis centers, located in the cities of Itaboraí and Niterói, respectively, both in the State of Rio de Janeiro.

The study was registered on the Plataforma Brasil under Submission Certificate for Ethical Evaluation (CAAE) 27160314.8.0000.5238 and received approval from the Research Ethics Committee (CEP) at Anna Nery School of Nursing under protocol 567.434. All the participants included signed the Free and Informed Consent Form, in compliance on National Health Council (CNS) Resolution 466/12 on the guidelines and regulations for research involving human beings.\(^6\)

The study participants were the patients undergoing hemodialysis at the centers described. The inclusion criteria were: being on hemodialysis (HD) for more than three months; undergoing HD three times per week, taking three to four hours; being over 18 years of age; being independent for activities of daily living; being able to read and having no cognitive disability. The head nurse of the services, who was already monitoring and was familiar with the participants, indicated the last three inclusion criteria. The sample of these participants had non-probabilistic, convenience-based characteristics.

On the whole, the two dialysis centers attend to about 300 patients. Only 109 complied with the inclusion criteria though. Seventy-eight of these patients were contacted between September 2014 and February 2015. The participants received and answered the evaluation questionnaire of the adherence of CKD patients on hemodialysis (QA-DRC-HD), a validated and culturally adapted tool for use in Brazil.\(^7\)

The biological markers, in turn, were collected from each patient’s electronic chart. Both clinics use the same data system, in which the in-
formation from each HD session, test results and nursing evolutions are stored. These data are used as objective criteria to determine the treatment adherence/non-adherence behavior, in combination with the subjective data from the applied questionnaire.

The QA-DRC-HD consists of 46 questions, divided in five sessions. The first refers to general information on the patient and the RRT. The second relates to the hemodialysis, the third to medication, the fourth fluid restrictions and, finally, questions on the dietary recommendations. The answers in the questionnaire use a combination of a Likert scale, multiple-choice and yes/no answers.⁷

Adherence itself is assessed in six of the 46 questions, scored according to the answer given. The most adherent patients gain a higher score, as opposed to the least adherent patient. Three questions relate to the HD domain, whose total score ranges from 0 to 600 points. Adherence with the other domains (medication, fluid intake and diet) is assessed by means of one question for each, with scores ranging between 0 and 200 points.⁷

Eight questions address the patients’ perception and knowledge on the treatment. The educational actions the monitoring health professionals presented to the patients are also covered, as well as questions on the caused related to non-compliance. Thus, the individual’s universe can be detailed, deepening the knowledge on the causes of certain behaviors.

The subjective data are correlated with objective criteria to determine the compliant/non-compliant behavior. These criteria are:⁶ being absent from more than one session and/or shortening an HD session by more than ten minutes (for non-compliance with HD); having a phosphorus level superior to 7.5mg/dl (for non-compliance with medication and diet); GPID superior to 5.7% of dry weight (for non-compliance with fluid intake) and potassium level superior to 6 mmol/l (for non-compliance with diet).

The data were included in an Excel® database and analyzed through simple descriptive statistics.

Results

Seventy-eight patients answered the questionnaire. The mean age was 51.10 years, ranging from 22.72 to 84.25 years. Of the total, 38.5% (30) were women and 61.5% (48) were men. Regarding the time of hemodialysis, the mean was 86.11 months, ranging from 3.32 to 409.9 months. 93.6% (73) of the participants had never received peritoneal dialysis (PD).

The questionnaire includes eight questions on the health professional’s approach to education and patient encouragement towards adherence. The question pattern is repeated, changing only the domain the questions are focused on (HD, medication, fluid intake and diet). Regarding the HD domain (26.9% of patients), in terms of fluid intake (33.3% of patients), the most prevalent response concerning how frequently they received information on these aspects was “When I started treatment the first time”. Regarding drugs and diet, the most prevalent response was “One month ago”, with 41% and 33.3%, respectively.

The questionnaire, in questions separated by domain, also asks if the patient has difficulties in following the appropriate treatment and at what level that difficulty occurs. The “no difficulty” option was answered by 65.4% of the patients questioned about compliance with the complete HD session, and by 74.3% of the subjects with regard to taking the prescribed medication.

What fluid intake and the diet were concerned, 49.8% and 53.9% of the patients reported a level of difficulty that varied from moderate to extreme in order to comply with the prescribed recommendations. The reasons associated with this fact were also questioned, and it was pointed out that more than half of the patients, 55.1%, said they were “unable to” follow the fluid intake recommendation, and 56.4% the proposed diet.

Despite the difficulties the patients presented, they mostly recognized and classified the complete implementation of HD programming (85.8%), medication intake (84.6%), fluid restriction (78.2%) and diet compliance (71.7%) as “extremely important” (Table 1).
The domain with the highest percentage of non-adherent patients was hemodialysis with 32%. Medication was the domain with the highest percentage of adherent patients, 93.6%. Table 2 also displays the respondents’ score, showing that the most adherent patients scored higher in each domain, while the least adherent patients’ score was lower (Table 2).

### Table 2. Adherent/non-adherent status

<table>
<thead>
<tr>
<th>Domain</th>
<th>Status</th>
<th>n(%)</th>
<th>Mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemodialysis</td>
<td>Adherent</td>
<td>53(68)</td>
<td>558.02</td>
</tr>
<tr>
<td></td>
<td>Non-adherent</td>
<td>25(32)</td>
<td>352.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>78(100)</td>
<td>-</td>
</tr>
<tr>
<td>Medication</td>
<td>Adherent</td>
<td>73(93.6)</td>
<td>177.40</td>
</tr>
<tr>
<td></td>
<td>Non-adherent</td>
<td>5(6.4)</td>
<td>30.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>78(100)</td>
<td>-</td>
</tr>
<tr>
<td>Fluid intake</td>
<td>Adherent</td>
<td>64(82.1)</td>
<td>128.91</td>
</tr>
<tr>
<td></td>
<td>Non-adherent</td>
<td>14(17.9)</td>
<td>7.14</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>78(100)</td>
<td>-</td>
</tr>
<tr>
<td>Diet</td>
<td>Adherent</td>
<td>67(85.9)</td>
<td>126.87</td>
</tr>
<tr>
<td></td>
<td>Non-adherent</td>
<td>11(14.1)</td>
<td>27.27</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>78(100)</td>
<td>-</td>
</tr>
</tbody>
</table>

% - percentage; n – sample size

### Discussion

According to the 2015 census of the Brazilian Society of Nephrology (SBN), 42.2% of dialysis patients are in the age group between 45 - 64 years. The mean age in this study was 51.10 years. In turn, the percentage of 61.5% of males is close to that presented in the 2015 census, which was 58%. Regarding the initial treatment modality, in the period between 2000 and 2004, 89% of the patients started their therapy with hemodialysis. In this study, on the other hand, 93.6% of patients had never undergone PD.

The high frequency of responses “when I started treatment for the first time” on the guidelines received about fluid intake and compliance with HD reflect the shortage and consequent need for continuing health education by the multiprofessional team.

The regulation of the dialysis centers determines a professional composition of one nurse for every 35 patients per HD shift, one physician in the same proportion and one nutritionist, one psychologist and one social worker per dialysis center. Taking into consideration that adherence is a dynamic phenomenon that needs to be influenced by several factors and may change quite frequently, it is imperative that the health team develops strategies to constantly promote adherence behavior.

In Switzerland, a prospective, randomized study was developed that proposed to separate patients into two groups: one group would be submitted to the integrated care approach (IC) and the other to the usual care (HC) approach. The study showed that, after six months of follow-up, 84% of the patients submitted to the IC group achieved satisfactory parathormone levels, compared to 55% of the patients in the habitual care group.

At a conservative treatment outpatient clinic in the city of Rio de Janeiro, the need was noticed to advance in the patient approach strategies to improve their treatment adherence. A collective strategy was adopted, which consisted of a waiting room debate mediated by health professionals; and an individual strategy consisting of a CKD monitoring card inspired by the child monitoring care, making it easier to visualize the progression of the disease, in addition to other aspects of treatment. Strategies such as these seek to permanently reinforce the need for patient adherence, making them reflect on their central role in conducting the established therapy.
A comprehensive systematic review evaluated efficient care models in care for patients with chronic kidney disease. Despite the limited evidence, the multidisciplinary models with nurse and pharmacist-led approach protocols presented the best results in the management of renal patients and better adherence to the treatment target. Key elements in chronic disease management include an organized approach, using evidence-based therapies and self-management support.\(^{(13)}\)

In this study, the nursing consultation was not evaluated. Nevertheless, it is important to reinforce its role in stimulating and achieving treatment adherence. When asked about “When was the last time a health professional talked to you about ...”, the most recurrent response in HD and fluid intake was “when I first started treatment,” with 26.9% and 33.3%, respectively. Assuming that adherence is an extremely dynamic process, the provision of treatment-specific guidelines at the start of treatment only is inadmissible and may contribute to a process of individual demotivation, leading to non-adherence to therapy.

Studies with other chronic pathologies have demonstrated the importance of the nursing consultation in achieving satisfactory adherence results. A study with diabetic patients, whose intervention was the accomplishment of three nursing consultations at one-month intervals, showed an increase in the adherence rate from 83.87% to 96.78%, this increase being associated with the consultation.\(^{(14)}\) The same occurred in a study with heart failure patients, whose adherence was significantly associated with nursing consultations.\(^{(15)}\)

As observed, the domains fluid intake and diet obtained the highest percentage of patients who reported difficulty to maintain treatment. The dietary regimen proposed to renal hemodialysis patients is extremely rigorous and several factors can influence compliance, including taste, economic situation, individual preference, social status, educational level, behavior, individual preferences and religious beliefs. All of these aspects may contribute to the patients’ reported difficulty.\(^{(16)}\) In a study developed in the USA, the difficulty to comply with the fluid restriction was associated with a lack of motivation, as the machine removed excess fluid and the goals were very strict.\(^{(17)}\)

The main cause associated with the difficulty to comply with the treatment was “I do not manage to follow”. Considering that 71.7% and 78.2% of the participants stated that it was “extremely important” to follow dietary and fluid recommendations, there seems to be a lack of motivation and/or inability to mobilize internal and subjective resources for this practice. The psychological and motivational aspects seem to play a prominent role in non-adherence to treatment.\(^{(18)}\)

In the hemodialysis domain, 85.8% considered it “extremely important” to follow the prescribed recommendation. On the other hand, 32% were considered non-adherent on the basis of objective criteria. This figure can be considered high when compared to data resulting from the application of the same instrument: 22.4% in a survey conducted in the USA\(^{(2)}\) and 7.6% in a survey also conducted in the USA, but with patients exclusively of Hispanic origin.\(^{(19)}\)

The instrument considers that some causes for a shorter HD time, such as hypotension, should not characterize the patient as non-adherent. Thus, the reduction of time should be associated with a cause unrelated to health problems. Of the patients considered non-adherent to HD, 44% claimed “personal problems” and 28% “did not want to stay”. The absence from and/or shortening of HD sessions is associated with increased hospitalization and mortality in this population, being the most worrying domain of treatment when the patients do not adhere.\(^{(20)}\)

Regarding the results of adherence in the other domains evaluated, the values found in this study are similar to the other two studies using the same instrument, both in the medication and in the diet domain. 6.7% of Brazilian participants, 5.1% of Americans\(^{(2)}\) and 5.7% of Hispanics were considered non-adherent to the medication.\(^{(18)}\) Non-adherent to the diet were 14.1% of Brazilians, 12% of Americans and 19.2% of Hispanics. In the fluid intake domain, there were greater differences among the results.

found: 17.9% of non-adherent Brazilians, 10.34% of Americans and 5.7% of Hispanics.

In a study conducted with 151 patients using the same instrument applied in this study, it was verified that adherence to fluid intake was associated with low inter-dialysis weight gain, HD adherence was related to satisfactory Kt/V level and adherence to medication correlated with low phosphorus levels. These findings reinforce the fundamental role of adherence in these patients’ clinical outcomes and indicate the path health professionals need to take in the surveillance and constant promotion of adherence. (21)

**Conclusion**

Treatment adherence is a dynamic behavior and, as such, needs constant monitoring. Therefore, new studies aimed at promoting adherence and improving morbidity and mortality indicators are important. The main limitation of the study was the patients’ educational level, restricting the participants’ greater inclusion in the selection stage. This kind of studies may benefit kidney patients by providing closer and individualized care, establishing trust in the professional-patient relationship and encouraging adherence to the proposed therapy. The multidisciplinary team in the dialysis centers is already legally established, but advances are needed towards interdisciplinary care, promoting the professionals’ integration in care for renal patients.

**References**


Treatment adherence of chronic kidney disease patients on hemodialysis


Perception and performance of nursing undergraduates in evaluation of active methodologies

Abstract

Objective: To identify the performance and perception of nursing students on the progression test, and to verify the existence of a relationship between performance and the current series, and between performance and the degree of difficulty of the test.

Methods: This was a descriptive study with a quantitative approach. An instrument was administered with socio-demographic information, classification of the degree of the test difficulty, and two questions about the advantages and disadvantages of the progression test.

Results: The population consisted of 78 students. The mean age was 24.4 years, with a predominance of females (89.7%). The students, who classified the test as easy, showed higher performance (p = 0.036), the second-year students stood out in relation to the first-semester (p = 0.014). The advantage stated was, test content 32.0%, progression and performance 25.7%, multiple choice questions 23.1%, and preparation for competitive entrance examinations 7.7%. The disadvantages were: 39.7% were very extensive, 26.9% lack of knowledge, 15.3% stated inadequate thematic content and structure, and insufficient time to complete the test for 6.4%.

Conclusion: The progression test evaluates, longitudinally, the student’s performance, identifies curricular strengths and weaknesses, and evaluates the institution. As one of the assessment instruments in the use of active teaching methodologies, its applicability should be encouraged in undergraduate courses.

Keywords

Education, nursing, baccalaureate; Educational measurement; Problem-based learning; Competency-based education; Educational technology

Descritores

Bacharelado em enfermagem; Avaliação educacional; Aprendizado baseado em problemas; Educação baseada em competências; Tecnologia educacional

Resumo

Objetivo: Conhecer o desempenho e a percepção dos estudantes de enfermagem na prova de progressão e verificar a existência de relação entre o desempenho e a série em curso e entre o desempenho e o grau de dificuldade da prova.

Métodos: Trata-se de um estudo descritivo de abordagem quantitativa, utilizou-se um instrumento constituído por questões sócio-demográficas, classificação do grau de dificuldade da prova e duas perguntas sobre vantagens e desvantagens da prova de progressão.

Resultados: A população constituía-se de 78 estudantes. Apresentaram idade média de 24,4 anos e predominio do sexo feminino, 89,7%. Os estudantes que consideraram a prova fácil tiveram desempenho maior (p = 0,036), os estudantes do segundo ano destacaram-se em relação ao primeiro (p = 0,014). Consideraram vantagem: conteúdo da prova 32,0%, progressão e desempenho 25,7%, questões de múltipla escolha 23,1%, e preparo para concursos 7,7%. As desvantagens, 39,7% prova muito extensa, 26,9% ausência de conhecimento, 15,3% temática e estrutura inadecuadas e 6,4% pouco tempo para realização da prova.

Conclusão: A Prova de Progressão avalia o desempenho do estudante longitudinalmente, identifica potencialidades e fragilidades curriculares, além de avaliar a instituição. Compreende um dos instrumentos avaliativos no uso de metodologias ativas de ensino e deve ser incentivada quanto à sua aplicabilidade nos cursos de graduação.

Resumen

Objetivo: Conocer desempeño y percepción de estudiantes de enfermería en la prueba de progresión, y verificar existencia de relación entre desempeño y la serie en curso, y entre desempeño y grado de dificultad de la prueba.

Métodos: Estudio descriptivo, de abordaje cuantitativo, utilizando instrumento constituido por cuestiones sociodemográficas, clasificación de grado de dificultad de la prueba y dos preguntas sobre ventajas y desventajas de la prueba de progresión.

Resultados: La población constituía por 78 estudiantes. El promedio etario era de 24,4 años, con predominio de sexo femenino (89,7%). Los estudiantes que consideraron la prueba como fácil tuvieron mejor desempeño (p=0,036), los estudiantes de segundo año se destacaron respecto de los de primer año (p=0,014). Consideraron como ventajas: contenido de la prueba (32,0%), progresión y desempeño (25,7%), preguntas de elección múltiple (23,1%) y preparación para concursos (7,7%). Las desventajas, prueba muy extensa (39,7%), falta de conocimientos (26,9%), temática y estructura inadecuadas (15,3%) y tiempo insuficiente para realizar la prueba (6,4%).

Conclusión: La Prueba de Progresión evalúa el desempeño del estudiante longitudinalmente, identifica potencialidades y debilidades curriculares, además de evaluar la institución. Constituye uno de los instrumentos evaluativos para uso de metodologías activas de enseñanza, debe incentivarse su aplicabilidad en los cursos de grado.

How to cite:

Introduction

The contemporary world demands that educational institutions present quality results, and document efficiency and effectiveness in the process of their students’ education. Thus, a more reflective education is required, that seeks answers to health population challenges. In addition to the technical competences, the national guidelines of Brazilian education indicate the need for university education that meets the needs of the labor market, which requires competent professionals capable of acting with social responsibility, commitment to citizenship, and who exercise the role of promoting integral health of the human being.

The teacher can adopt different methodological strategies, with special attention to the social and political context of the students, integrated in the macro scenario. The adoption of active methodologies in higher education contributes to the formation of this student’s profile, especially when using problematization and Problem-Based Learning (PBL) as learning strategies.

The PBL is a pedagogical proposal, developed in the late 1960’s at McMaster University (Canada) and at the University of Maastricht (The Netherlands). It is a student-centered method, aiming at autonomous and independent learning. It seeks to meet the needs of knowledge and acquisition of skills to achieve learning objectives in the most diverse situations of vocational education.

The PBL is designed to enable students to develop conceptual, procedural, and attitudinal learning and prepare them for the job market. This method provides autonomous learners, critical students, and those with the ability to lead and work as a team, as compared to nursing students who experience a traditional educational curriculum.

In addition to the knowledge learned, the PBL and problematization allow the student to connect the community and the outside world to the classroom, providing access to community resources, promoting citizenship and the social-political exercise. For cognitive-learning, knowledge retention and knowledge transfer are stimulated and developed in problem-based teaching methodologies.

The teaching grounded on active methodologies requires the use of several methods of evaluation, such as the Progression Test (PT), also known as progressive assessment or progress test. This assessment is characterized by multiple-choice tests organized by the content of each of the areas of which the nursing curriculum consists.

This type of assessment enables the student the real knowledge of his/her performance and progression in the series of courses, by the number of correct and erroneous answers on the test. For academic management, it is a valuable diagnostic tool for learning related to the retention of knowledge on all areas of the student’s education curriculum.

The progress test is considered a longitudinal assessment, with objective questions of the total pedagogical content, administered to all students, independently of their year. Wrigley et al. describe the progression test as a test of 100 to 200 questions, varying by course and university.

The nursing education of the Pontifical Catholic University of São Paulo (PUCSP) has been in existence for 67 years, with 10 years of implementation of a curriculum based on Active Learning Methodologies, standing out as one of the pioneer schools in the country, using this methodology. An integrated curriculum is the main characteristic, and uses problematization and PBL as a learning strategy. It is based on the construction of cognitive, affective, and behavioral knowledge of undergraduate nursing students.

The process of evaluating undergraduate nursing students is quite complex, and involves continuous teacher and student learning. As in traditional methods, in PBL and in problematization, evaluating is one of the major problems of curricular implementation and maintenance. The literature indicates concerns and explanations regarding the procedures and characteristics of that methodology; few studies analyze and indicate the trajectories of evaluative processes.

Therefore, we understand that the pedagogical dimensions of evaluating should be understood as part of the process of teaching-learning, in a conscious and systematic manner, focused on the process of student education.
In addition to the PT, other evaluating methods are used in our university, the following are the formative ones: self-assessment, peer assessment, assessment by a tutor, portfolio, and conceptual map. The summative assessment is composed of written, practical evaluation, and the PT.

In the studied institution, the progression tests have, on average, 60 questions related to the content taught and described in the Pedagogical Project of the Course (PPC), is conducted annually in the second semester, requiring the participation of all students regularly enrolled.

Considering the complexity of the PT as a global formative assessment tool, and the scarcity of scientific literature and practical evidence, we limited this research, as a first study initiative, to the following questions: How is the undergraduate student’s performance according to each collegiate year? Is there a relationship between the performance and the grades, as well as the expected evolution? How does the student assess PT as to the level of difficulty? What advantages and disadvantages do students perceive from the PT?

In this sense, this study aims to deepen the knowledge on the PT, to improve its practical application, with the objectives: to identify the performance on and perception of undergraduate nursing students in the progression test, and to verify the existence of a relationship between the performance and the year in progress and between the performance and the level of the test difficulty.

Methods

This was a descriptive study, with a quantitative approach, conducted at PUCSP.

Among the 106 students enrolled in 2015, in the four years of the University’s nursing undergraduate major, 78 (73.5%) were part of this study, 21 of the first year (26.9%), 19 of the second (24.3%), 20 from the third (25.7%), and 18 from the fourth year (23.1%). The data were collected in October of 2015, by one of the researchers, after the progression test, which was pre-scheduled and published in the academic calendar.

A questionnaire was developed for data collection, comprised of: socio-demographic characterization, which corresponded to age, sex, grades in progress, paid enrollment in study/promotion programs; the student’s perception of the test, how they classified the degree of difficulty of the test - very easy, easy, medium, difficult and very difficult - and their answers to two structured questions, “What are the advantages of the progression test?” and “What are the disadvantages of the progression test?”

The student performance data on the tests were taken from the University’s online system, copied to a data spreadsheet from Excel for Windows (version 2013), and entered into the System for Windows, Version 9.2 (SAS) program. Descriptive statistics were used with dispersion measures to characterize the population, performance, and perception of the students on the PT.

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The Pearson’s Chi-Square test or Fisher’s exact test was used for comparison of the categorical variables. The Mann-Whitney test was used for comparison of the numerical variables between two groups, and between three or more groups, the Kruskal-Wallis test was used, due to the absence of normal distribution of the variables. The significance level adopted for the statistical tests was $p < 0.05$.

The characterization of the population and the classification of the test questions were treated by means of descriptive statistics, also used for the two questions about the advantages and disadvantages, in addition to the dispersion measures. The answers to each question were grouped by frequency, forming the groups described below.

First question - advantages of the progression test, four groups: 1.1 PT content - answers related to the question issue; Group 1.2 Performance and progression - characterized by students’ perception of performance and evolution; 1.3 Type of test - related to multiple choice questions; 1.4 Preparation for competitive entrance examinations represented by the possible training for selective processes.

Second question - disadvantages of the progression test, three groups: 2.1 PT structure - attributes of the formulation of questions; 2.2 Duration of the PT - time dedicated to the test; 2.3 Absence of knowledge - related to the current year of progress.
At the presentation of these results, examples were inserted that discriminated each group; the answers were coded with the letter E, and numbered from 1 to 78.

The study was conducted after approval by the Research Ethics Committee of PUCSP, CAAE number 43861115.5.0000.5373, according to the provisions of Resolution No. 466/2012 and Operational Norm No. 001/2013. All participants who agreed to respond to the questionnaire signed the Terms of Free and Informed Consent Form, with the guarantee of confidentiality and anonymity of their participation.

Results

Among the 78 participating students, 70 (89.7%) were female and 8 (10.3%) were male; the ages ranged from 17 to 51 years, with a mean of 24.4 years, standard deviation 6.6.

The majority of the students, 60.3% had an employment relationship with remuneration; 70.5% had a scholarship from the programs: University for All Program (PROUNI), São Paulo Foundation—(FUNDASP) and Student Financing Fund (FIES), and 12.8% were in research promotion programs: National Council for Scientific and Technological Development (CNPq) and the São Paulo Research Foundation (FAPESP).

The student performance related to the number of correct scores in percentile (%) in the PT is shown in table 1.

Regarding the participants' perceptions of the level of difficulty of the progression test, four students (5.1%) classified it as easy, two students of the first year and two of the third; 50 (64.2%), students considered the PT as medium difficulty, 15 (7.5%) of the first year, 12 (6.0%) of the second, 12 (6.0%) of the third, and 11 (5.5%) of the fourth year; 22 students (28.2%) considered the test difficult, two (0.4%) of the first year, seven (1.5%) the second; six (1.3%) of the third, and seven (1.5%) of the fourth year; two students (2.5%) of the first year mentioned that the test was very difficult.

When comparing the number of correct answers and the classification of questions as easy, medium, difficult or very difficult, there was a statistically significant difference (p = 0.036), and the students who considered the test easy showed a better performance than those who found it to be a very difficult test; the mean of correct answers was 54.0% and 32.0%, respectively.

When comparing students’ performances in the four years, statistically significant differences were found only between the first and second years (p = 0.014), such that the second year students presented a better performance, mean scores of 50.0%, while the first year had a mean of 42.1% correct answers.]

Among the participants, nine (11.6%) did not answer the questions related to the qualitative variables, the other 69 (88.4%) stated their perception on the advantages and disadvantages of the PT.

- First question - Advantages of the progression test - 69 students - 100%
  According to the PT content, 25 (36.2%) students identified it as relevant and comprehensive, demonstrating the need for articulating knowledge.
  - “The opportunity we have to use the knowledge we learned during the past modules to answer the questions, as we use new knowledge and reinforce our learning, and can resume subjects from the first year” (E 37).
  - “The great majority of the content of the questions is related to the everyday content of nursing, regarding primary, secondary and tertiary care” (E 66).
  - “The greatest advantage is to have, in the tests, questions that are part of our curriculum” (E 74).

The first year undergraduate students presented better performance when compared to the other grades, with statistical significance when compared to the second (p = 0.014).

Table 1. Undergraduate student performance on the PT, per year

<table>
<thead>
<tr>
<th>Year</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Median</th>
<th>p-value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>21</td>
<td>42.06</td>
<td>8.67</td>
<td>25.00</td>
<td>58.33</td>
<td>43.33</td>
<td>P=0.014</td>
</tr>
<tr>
<td>2nd year</td>
<td>19</td>
<td>50.00</td>
<td>5.58</td>
<td>43.33</td>
<td>65.00</td>
<td>50.00</td>
<td>-&gt; 1≠2</td>
</tr>
<tr>
<td>3rd year</td>
<td>20</td>
<td>47.33</td>
<td>9.39</td>
<td>31.67</td>
<td>63.33</td>
<td>47.50</td>
<td></td>
</tr>
<tr>
<td>4th year</td>
<td>18</td>
<td>49.07</td>
<td>7.57</td>
<td>36.67</td>
<td>65.00</td>
<td>48.33</td>
<td></td>
</tr>
</tbody>
</table>

* p-value for the Kruskal-Wallis test to compare the variables between three or more groups

The first year undergraduate students presented better performance when compared to the other grades, with statistical significance when compared to the second (p = 0.014).
With regard to performance and progression, 20 (28.9%) undergraduate students showed the perspective of a progressive student, method and course evaluation.

- “It enables the evaluation of student progression during the nursing education according to each year” (E 27).
- Very good test for evaluation of the major, and performance of the students and their progress during the four years; also enables evaluation of the method “(E 28).
- “I believe that the test itself is a facilitator, and the student can know his parameters in the four years of the nursing education, evaluating if he has progressed, regressed, or remained the same in relation to acquired knowledge” (E 69).

Regarding the type of test, 18 (26.1%) students stated the advantage of the multiple-choice test.

- “For me, multiple choice questions accelerate completing the test, and we can train for future competitive entrance examinations” (E 52).
- “I think that the aspect facilitates the fact that the exam is a test, because we have more time to answer the questions” (E 17).
- “The fact that the test has alternative questions helps me to evaluate the options and, in case I do not know the answer, I can get closer to the answer that I think is the most correct” (E 75).

Regarding the preparation for competitive entrance examinations, six (8.7%) students stated that the PT simulates these tests, by addressing all the content of the undergraduate program.

- “I think it is good to have the opportunity to do a different test than the ones we use to participate during the modules, as it includes all the content, simulating competitive examinations” (E 78).
- “The test allows training for competitive examinations, checks how we find ourselves in relation to the studies and learning. I think the fourth year is the best grade for a good performance on the test, because, theoretically, students of fourth year are already prepared” (E 25).
- “This test provides training for a test in future selective processes, because it helps us to remember subjects that we have already seen in previous semesters, and helps us to know what we will still see in the future” (E 26).

- Second question - Disadvantages of the progression test - 69 students - 100%

Regarding the structure of the PT, they found it to be an extensive, tiring, and laborious test - 43 (62.3%) students.

- “The greatest disadvantage for me, lies in the fact that the texts that compose the test are very extensive” (E 48).
- “I think that very extensive questions cause a lack of concentration at the end of the test” (E 65).
- “I found the questions very long and I could not focus for a long time” (E 13).
- “Difficulty was found in the elaboration of the questions, because there were some extensive alternatives” (E 17).
- “The formulation of some questions, which have divergences in the answers” (E 37).
- “The issues are sometimes out of date, ambiguous, and the information provided is inconsistent, the issues are dull” (E 38).

In addition, five (7.3%) students considered the duration of PT, insufficient to accomplish.

- “Test time is short for us to complete, and the content is very long, so it gets tiresome” (E 43).
- “Short test time for long text questions” (E 44).
- “I have difficulty in understanding many questions in a short time” (E 63).

As expected, 21 (30.4%) students commented on the absence of knowledge, depending on their current year.

- “I believe that, due to the current year and to the fact that some questions correspond to the next semesters, I did not know how to answer. That was the greatest difficulty I have” (E 1).
- “Not having enough knowledge from the future semesters to answer the test” (E 6).
- “The most difficulty was to answer questions related to the next semesters, as the fact that I
do not know the contents, make me unsatisfied with my result” (E 7).
- “I found difficulties in issues that I had not yet known, even so, I tried to answer by deduction, which, many times, may have hindered my result” (E 9).

Discussion

The predominance of females and the mean age of the students were similar to those found in the Brazilian literature, which shows that 85.1% of the nursing professional contingent is female; 40% are ages between 36 and 50 years; 38% between 26 and 35 years, and 2% above 61 years. (9)

The high number of students who have remunerated employment and support programs show a part of the Brazilian reality, experienced by the working student. Knowledge of the student profile, such as age, sex and work activity, provides the development of targeted learning strategies, critical-reflexive practice activities and innovative teaching procedures that are interrelated with the socio-political, economic, and institutional reality.

The shortage of publications related to the PT performed by nursing students, the diversity of definitions, the characteristics of the test, and the particularities of the pedagogical projects of the undergraduate health majors make it difficult to compare with the literature. The studies found point to the area of medical education. (10)

The PT is an evaluation instrument with the purpose of measuring the final competences of the nursing education; the measurement must be done by means of the evaluation of the student's learning regarding the aspects essential to formation. Although it is based on memorization, the individual scores of the students obtained in the PT should be used as formative and non-summative evaluation, therefore, the evaluation should be performed through several instruments, and not in a single test. (11)

Regarding the degree of the test difficulty, this questioning has not yet been satisfactorily answered by the literature, as the students’ perceptions are characterized by the subjectivity of the response. However, there is a need for studies related to the perception and performance of students’ successively monitored, with variable metric statistics, and analytical procedures such as Item Response Theory, so that the results can be considered a consensus.

The development of the PT should be made to enable the measurement of students’ performance in a longitudinal and progressive manner. (7,8,10)

Thus, and because of the volume and complexity of increasing content over the years, it is expected that the performance of the second year students will be better than the first year, and so on, successively, finishing in the fourth year, which should be better than all the previous ones.

In this study, this fact was only observed in the performance of the students of second year in relation to the first one, which suggests the need to deepen the investigation regarding the efficiency of PT to differentiate the progressive evolution of learning and the possibility of correct answers by chance - ‘to guess’; the distribution of the content by the questions, as mentioned by the year in progress, also needs an evaluation. In addition, we note that the number of respondents may have been insufficient for this type of statistical analyses.

Knowing the students’ perceptions regarding the PT makes us reflect on the learning behaviors and the evaluation of teaching. Content, directly related to learning, has been considered to be an advantage; it refers to the idea that the student is relating the theme of the questions addressed in the test to their ability to respond to their learning.

From this perspective, studies show the students’ perception about the PT is that it is a useful test, which enables an evaluation of memorization and repetition, leading to better learning, guided by feedback. (11,12)

The PBL teaching methodology, however, is not restricted to memorization, as it provides the freedom for students to pursue their own learning, focusing on personal and individual choices and needs for study and learning. (12-14)

Students are encouraged to study the main contents of each module that make up the curriculum,
facilitating the acquisition and the retention of knowledge in the long term.

The opportunity to demonstrate progression and performance was another advantage stated by the students, which is consonant with the primary purpose of PT, although this result was not observed in the comparative performance between the grades.

The PT was considered to be useful for measuring knowledge acquired during the nursing education, based on the curricular formulation,(15) and establishes an important relationship between the student’s level of knowledge and his performance on this evaluative model.(16)

Another study(17) on academic perception for the PT showed that the test evaluates academic learning, which is a fair and valid test, and students would like to have more time for the tests. Feedback has led these students to devote more time for this type of assessment.

The importance of cognitive development in the education of health professionals is considered a continuous process of acquiring and consolidating a set of components necessary for the knowledge domain in one or more areas of performance. It demonstrates, in addition to cognitive growth, a greater participation of students in the tests.(7)

The PT is considered an orientation instrument for studies, especially when related to content evaluation and retention of this knowledge in the long term.(13) The students perceived the test as a kind of training for future tests and competitive examinations, mainly because this test consists of multiple choice questions. All the written evaluations that compose the PPC of the PUCSP consist of-ended open questions; the only exception is the PT. As found in this study, we observed that in the area of medicine, the PT is considered to be a “training” so that students, after completing their undergraduate course, were better prepared to take the medical qualification tests.(18)

The effective development of these questions, however, is so laborious that a software was developed(19) able to measure cognitive knowledge in tests with multiple choice questions.

With regard to the content and form of the structure of the questions, the development of the tests is initially done by professors in Brazilian universities, and later these questions are grouped and revised by a commission indicated for this purpose.(20,21)

In comparison to international studies, this is quite different, and discussed. The tests are written either by a database (computer program), such as in MacMaster,(22) which has a database of questions with 3500 items selected and reviewed by a responsible teacher. After the test, students evaluate each item of the test, which is then maintained in or removed from the question bank.

As the Brazilian experiences in Maastricht,(23) the process of creating the tests is laborious and involves a large number of teachers who write wording and alternatives, review, and approve the final organization of the tests.

In addition, it is essential to verify evidence of validity to measure students’ performance on certain knowledge.(24,25)

The structuring of assertions and alternatives in multiple-choice tests for use in the PT is also an important aspect for reliability of the results. In this sense, the assertions of the tests should not only require the student to memorize, but mainly to address higher taxonomic categories, such as synthesis or evaluation.(5)

The PT is designed to test final skills, addressed by complex exercises that demonstrate problem-solving skills. Such items may be difficult to be developed, and require teachers’ training and skills as well as a good understanding of the objectives.(11) This analysis has not yet been performed in the PT of the studied university.

The characterization of the test as extensive and with insufficient time for its completion may be associated to the perception of it being exhausting.

In spite of this, the analyzed test had 60 questions, a number below the recommendations of international studies. MacMaster University recommends the application of 180 multiple-choice questions. The University of Missouri - Kansas recommends the application of 400 items, and the University of Maastricht the use of 250 questions...
of true or false type. Brazilian studies recommend PT with multiple choice structure, varying from 120 to 150 questions.

Proposing practical suggestions for the application of PT, some authors describe that, although the PTs have the purpose of evaluating the general curricular competencies, one of the disadvantages is related to the development, administration, correction and feedback, a high-cost evaluation process for educational institutions.

As for the time, in PUCSP, the students can take the test over a period of up to four hours, and cannot leave before the first hour. On average, it takes four minutes to complete each question, which is opposed to the MacMaster and Missouri Universities, where the student has, on average, one minute to solve each question. In only one Brazilian university, there is a time record with an average of 80 seconds. The minimum time to answer the PT questions is approximately 75 - 85 seconds.

The lack of knowledge and the inadequate structure and thematic content may be related to the fact that they did not know all the content to answer the test, as only a quarter of the students were in the fourth year, and therefore only that portion of students had had all the content of the nursing program.

A disadvantage reported by the students was related to the development of the questions, because they have characteristics of assertions with extensive alternatives, questions with divergences in the answers, and had ambiguous information provided that was inconsistent and exhausting. These aspects are not mentioned in the literature.

The application of PT as an evaluation process of knowledge is integrated in the methodology of teaching PBL. The construction of the knowledge and learning advocated in this methodology is based on previous knowledge and experience, considering the importance of common sense questioned by the science in a constant dialogue in the transformation of learning. The PBL methodology is supported by meaningful learning, in which all knowledge requires the interrelation of the students’ prior knowledge to be meaningful. Reflective learning considers the importance of cognitive responses, however, thoughts and feelings should be revealed because they are involved in the learning process. Participants in this study have realized that they depend on relevant concepts to respond to the PT questions.

We can understand these findings, as well, through the cultural dimension and understand that “our students” need to get accustomed to this type of assessment. In international studies, for example, the application of PT in Maastricht and the University of Missouri Kansas City (UMKC) occurs four times a year, and at MacMaster and Utrecht it occurs three times annually.

Studies consider that the PT provides stability in the evaluation procedures, helps with changes and curricular adjustments, promotes content change, and must be analyzed under these dimensions, both by students and teachers, not only aiming at performance and progression.

Given the favorable aspects and problems identified, we believe that the formation of a teaching committee for the elaboration, administration, and improvement of the PT, and the feedback to the students, can contribute as an effective academic management tool in the evaluation processes of the education. The development of the PT in an objective way, interrelated with the curricular matrices, can provide the reduction of institutional costs and greater credibility of the PT as an evaluation tool.

## Conclusion

As recommended by the literature, the PT provided the student with reflections on his performance and progression in the years. Although problems were pointed out, we affirm its importance as a tool for diagnostic and formative evaluation in the student education. The students’ statements clarify formative aspects of the PT, showing perceptions on the advantages and disadvantages from the optics of students. It is necessary to articulate knowledge of the questions’ content, as well as the opportunity to test the overall contents of the nursing program. These aspects, in turn, support the teacher in the planning and decision-making process of teaching, learning,
and evaluation. Problematization and the PBL, with the support of constructivism, refute learning restricted to the transmission and memorization of knowledge, and in this way, it is essential to deepen the investigation regarding the TP so that, in fact, it fulfills its evaluation role in the construction of a critical and active professional. To gain insight into this process, evidence of in-depth research is needed and should focus on the needs analysis, learning monitoring, and assessment goals. We assume, as limiting factors of this research, the regionalization and small size of the population that was not stratified and, therefore, may have skewed the results, in addition to preventing the performance of more refined statistical tests, which impair the generalization of the findings.

Despite these limitations, we consider as contributions of the study the identification of important aspects to be investigated, not only for the university field of study, but also for higher education institutions that already use it to review their practice, and for those that intend to implement the PT as a formative and longitudinal evaluation tool. Moreover, the dissemination of an analysis of the PT, although incipient, is essential, as no studies are available in the nursing literature, and all the studies cited derive from the medical area. Finally, we emphasize that this study motivated the researchers to deepen the research, resulting in a doctoral thesis.

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Collaborations

Pascon DM, Otrenti E, Mira VL contributed to the study design, data analysis, article writing, relevant critical review of the intellectual content, and final approval of the version to be published.


Phenomenology as a possibility for a close look at midwifery practices
A fenomenologia como possibilidade de um olhar atentivo para as práticas obstétricas

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Descritores
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Abstract
Objective: Understand meanings of midwifery practices in care for women ready to give birth at a public hospital according the postpartum women.

Methods: Heideggerian phenomenological study developed at a public hospital. The participants were 06 women over 18 years of age in the immediate postpartum. The phenomenological interview was applied as the data collection technique between January and May 2017. In the comprehensive analysis, the movements of phenomenological reduction, construction and destruction were followed, in accordance with the theoretical philosophical framework of Martin Heidegger and phenomenology experts.

Result: The women experience the parturition phenomenon in the form of fear and solicitude and in the opening of the disposition towards oneself, represented by the existential structures described in the units of meaning: A – Fear in the normal birth experience – the woman's perspective; B - The woman's solicitude in the disposition to be herself, experiencing care as being there in the parturition process.

Conclusion: There is a mismatch between evidence-based practices, comprehensive care and the daily reality of care for women ready to give birth, which is linked to the inauthentic mode of care, constantly occupied, and to the they. We argue that the practices implemented in the parturition process should be based on comprehensive solicitude, centered on the woman's existential dimensions, and linked to the horizon of the existentiality and to the open way of being-in-the-world.

Resumen
Objetivo: Comprender sentidos de prácticas obstétricas realizadas en atención a parturientes en hospital público en el inmediato posparto.

Métodos: Estudio fenomenológico heideggeriano, realizado en hospital público. Participaron 06 mujeres, mayores de 18 años, en pósito inmediato. Fue aplicada entrevista fenomenológica como técnica de recolección en el periodo de enero y mayo de 2017. A análisis comprensivo se debió seguir las etapas de reducción, construcción e destrucción fenomenológica, conforme al referencial teórico filosófico de Martin Heidegger e estudiosos de fenomenología.

Resultados: Fue desvelado que las parturientes vivencian el fenómeno del transcurso parturitivo, en modo del temor e solicitude e en la abertura de la disposición para sí-mismas, representadas por las estructuras existenciales descritas en las unidades de sentidos: A – Temor en la vivencia del parto normal – óptica de la mujer; B - Solicitude de la mujer en disposición para ser-sí-mismas vivenciando el cuidado como ser-sí en el transcurso parturitivo.

Conclusión: Há un descompasso entre as práticas basadas en evidências, el cuidado comprensivo e o cotidiano del atendimento a parturiente, que se vincula ao modo inauthêntico no cuidado, constantemente, ocupado e no a gente. Defendemos que as práticas implementadas durante o transcurso parturitivo sejam pautadas no modo compreensivo de solicitude, centrado na dimensão existencial da mulher, vinculadas ao horizonte da existencialidade e ao modo aberto de ser-no-mundo.

How to cite:
Introduction

Historically, deliveries were performed at home, with the exclusively female presence of midwives who experienced this practice. Although they did not have scientific knowledge, they were famous for their experiences gained in the course of life, and often had affinity and familiarity with the woman and the family, which permitted a relationship of trust.¹

Childbirth care began when women began to assist each other in this process, with the participation of their family members and midwives, who were accumulating experiences passed from generation to generation, to help in this much-awaited and important moment in the women’s lives. Throughout history, however, as a reflection of social medicalization, childbirth starts to be described as a complex sociocultural process, transforming the experiences, suffering and pain that used to be managed in the family or community environment into medical needs, culminating in the medicalization of the female body.²

Then, the health professionals began to perform increasingly invasive and interventional procedures, justifying the shorter time needed and greater practicality to perform the delivery. In Brazil, two factors influence care for pregnant, parturient and postpartum women. Factors based on European and American practices. The first is based on the physiology of childbirth, considering the moment as non-pathological, not requiring medicalization and with a minimum of interventions, which enables women to play a leading role and grants safety and comfort in the parturition process. The second emphasizes technicality, large-scale surgical interventions, medicalization and active labor management, with productivity based on capitalism. Hence, technocracy invades this moment of uniqueness for parturient women and family members. The woman turns into an object and does not participate in the process.³

In this sense, parturition is an event that has undergone countless transformations / adjustments with regard to the health practices employed in the care for women who experience the physiology of pregnancy, childbirth and birth. Practices have been used whose evidence base has been analyzed, also aiming to promote satisfaction, especially for the women giving birth.

Therefore, against this historical background and motivated by our academic experience in the area of women’s health, we conducted the study with a method that values the understanding of care in a Heideggerian phenomenological perspective, being a philosophical current that understands the possibilities of human existentiality in the world.

Based on the existential comprehension of being-in-the-world, we can achieve the restructuring of practices, allied to (co) accountability and welcoming in the care for women during parturition. Thus, in the delimitation of the subject, in defense of a comprehensive way of caring, we observe that Heidegger’s phenomenology can be used as a theoretical, philosophical and methodological axis for the development of this study.

Being-in-the-world is how Martin Heidegger, through ontology, defines the human as being-there. It refers to the man who is launched into the world,⁴ inhabiting the reality that he himself questions, that is, the possibility of his own being - in the sense of existing in the world, every human being has his/her own characteristics. For Heidegger,⁴ the human is a happening, an unfinished project in execution, thus adding infinite possibilities in his/her historical, social, daily trajectory and in all the spheres of living that are linked throughout a temporality - temporality which is finite and circular, unlike the temporality of other entities, which can be considered infinite.

Entity refers to the immanent, to what the senses show us. It is what everyone perceives, it is the covert being, how the human presents him/herself in the world. The entity can be shown in different ways, depending on its mode of existence. Existence, which, for Heidegger,⁵ does not mean what is found in the world, but what emerges and is consolidated in three aspects: facticity, as the being-there, launched in the world, without alternative choices; decadence as a way of being of the daily, in the domain of the impersonal and characterized by chatter, curiosity and ambiguity; and
transcendence, a way of projecting oneself beyond and discovering one’s own meaning.

Thus, understanding the meaning of this philosophical view implies finding possibilities of the entity in its modes of being. Sense, in Heidegger’s language, refers to a comprehensive circularity that can represent horizon, modes of being, perspective, possibility. And this understanding reveals the sense of being, which implies modes of being. In taking care in Heidegger’s perspective, we glimpse the possibility of the detachment from presuppositions, we assume an understanding of the other’s experience through expressions of verbal or written languages, gestures, attitudes and silences. Heidegger’s phenomenology is not intended to talk about the “what” but the “how” of things. It intends to understand human existence. This article is a product of a Master’s thesis intended to understand meanings of midwifery practices performed in care for women about to give birth within Heidegger’s phenomenological perspective, from the women’s perspective.

**Methods**

This research is characterized as a phenomenological study using the qualitative method, through the phenomenological interview for data collection and hermeneutics as a method of interpretation. The field of study was the Obstetric Center (CO) of General Hospital Clériston Andrade (HGCA), which is located in the city of Feira de Santana, Bahia. As qualitative studies do not define number of participants by the very characteristic of the research method, women were interviewed in a random fashion in the immediate postpartum period, which is the period from the first to the tenth day after childbirth.

They were selected based on the inclusion criteria: postpartum women over 18 years of age who were in the immediate postpartum period (natural delivery), at a rooming-in unit with at least four hours after giving birth. The data collection was carried out with postpartum women who had undergone parturition because they respected the physiology of childbirth and postpartum and because they understood that, while giving birth or in the first hours postpartum, physical and emotional fatigue could affect their testimony.

Criteria for non-inclusion were: postpartum women younger than 18 years or beyond the immediate postpartum period. We interviewed six women who had experienced the parturition. For the sake of anonymity, the use of a codename they chose themselves was guaranteed, using a list with the names of gemstones. This number of deponents was reached when we perceived that the discourse was sufficient to respond to the research objective. Then, the process of comprehensive analysis could start, aiming to unveil the phenomenon of midwifery practices.

The interviews were carried out in the daytime period on different days in January, February, March and April 2017. In order to understand the phenomenon based on the being who experiences it, the phenomenological interview technique was used. As a tool, a six-part structured script was used. In the first one, the deponents’ characteristics were recorded: age, sex, marital status, housing area, education, work activity. In the second, socioeconomic information. The third included gynecological-obstetric information. In the fourth, the conditions of childbirth. The fifth part addressed the research question: How did you feel in care for your delivery? Talk about this moment. In the sixth and final part, guiding openings were offered to complement the research question.

The analysis movement in Martin Heidegger’s phenomenological method consists of moments of vague and median understanding and hermeneutics. In this understanding, the meanings seized in the discourse were highlighted, which represented what appeared, the way of being in everyday life, which is located in the ontic dimension of existence. For its development, re-readings of the interviews were carried out in order to search for the essential structures that expressed the meanings of the phenomenon in the testimonies and to group the discourse excerpts that presented similarities, with a view to constructing the Units of Meaning.
The data analysis was constructed based on the rigor of Heidegger’s phenomenological method, following the moments of phenomenological reduction, construction and destruction, which (co) belong, which complement each other in a hermeneutical circularity. A movement that permitted the understanding and the unveiling of the ways of being of the women who experienced the midwifery practices in the parturition process.

In the first moment, the phenomenological reduction - we shift the look from the entity towards the being, so that what remains hidden in what is shown can come out. In this study, that represented the transcription of the phenomenological interview, the registering of all the details experienced and perceived in the dialogue, whether verbal or nonverbal. At that moment, the framework of comprehensive analysis was constructed, revealing the existential representations in the testimonies.

Based on the ontological/existential dimensions, the ontological/existential dimensions were unveiled, represented by the modes of disposition in Heidegger’s construct. Therefore, the structures emphasized in the transcripts were highlighted with colors. This permitted grouping the statements that expressed the experience of the phenomenon of midwifery practices during parturition.

In the second moment of the method, the phenomenological construction, the meaning of the entity obtained earlier was projected, which consisted in approaching the meanings attributed to the midwifery practices based on the experiences of the woman in the daily practice of health. The senses still remained veiled though and, in order to reach the interpretation of the meanings found, it was essential to intersect the statements, which culminated in the third moment of the method, the phenomenological destruction, which permitted hermeneutics.

At this moment, the ontological/existential structures were highlighted in the comprehensive analysis picture, represented by Heidegger’s modes of disposition. This reveals the understanding of meaning, which in Heidegger’s construct represents horizon, possibilities and modes of being. The modes of being of the woman who experienced the midwifery practices in the parturition process were unveiled. In the third and final moment Heidegger presents, the phenomenological destruction, which means deconstructing the traditional pre-existing concepts, the hermeneutics took place, which aimed to unveil the ontological dimension of the phenomenon, which did not show itself directly in the fact, but was concealed in it, appointing the need to deconstruct the factual in order to unveil the meaning of the midwifery practices.

This research complied with the ethical aspects of National Health Council Resolution 466/12. Ethical approval was obtained under CAAE 49615815.0.0000.0053 and Resolution 008/2016 of the Higher Council of Teaching, Research and Community Services (CONSEPE) at Universidade Estadual de Feira de Santana (UEFS).

Results

To permit the defense of midwifery practices within a comprehensive and existential perspective, the Units of Meaning emerged, built in the light of Heidegger’s method and other phenomenology experts, who approach the health practices to philosophy in the daily reality of health services. These are presented next together with the excerpts from the statements that make up each of the Units.

Unit of Meaning a - Fear in the normal birth experience – the woman’s perspective

“[…] as everyone knows, right, a lot of pain and a bit of despair. (Pearl)

“[…] I was a bit scared, because the other delivery was very dry as well […]”. (Crystal)

“[…] and people were always telling me: it’s when the head comes out that it hurts […]”. (Pearl)

“[…] the pain is incomparable (interrupting), it’s a pain that seems as if we won’t stand it […]”. (Crystal)

“[…] because I went from hospital to hospital and they still wouldn’t receive me […]”. (Turquoise)

“[…] I felt great pain, I did, I caused a scandal when I arrived […]”. (Turquoise)

Unit of Meaning b - The woman’s solicitude in the
disposition to be herself, experiencing care as being there in the parturition process

“[...] wanting to be a mother and having this pleasure of feeling this pain I wanted to feel [...]”. (Pearl)

“[...] at least when I was there feeling the pain I knew that he (the baby) was there with me, then afterwards when they took him in there I felt alone [...]”. (Jasper)

“[...] It was good because at one-hour intervals a nurse went to see me. She felt, looked how I was doing, [...] she went, touched my belly, to see if it was contracting, she kept waiting, smoothened, then she got a glove and touched, then she explained that it was dilating [...]”.

“[...] I was well taken care of, welcomed, I liked the nurse or was it a doctor (expressing doubt) who did my delivery, excellent (emphasis) encouraging me and congratulations for me, right? Because I didn’t scream, I didn’t get desperate, I thought I would do all that, but not at the moment, everything went well [...].” (Diamond)

“[...] I had a dry mouth, then I started feeling hungry, then it went by, [...] Horrible, bad not to drink water [...].

“[...] My delivery was normal, because I had him alone. In the birth room, then the mother who was with me called for the nurse, the nurse came to look and he was already coming out, she said no [...] when she came back, the boy’s head was coming out already [...]”. (Turquoise)

“[...] They treated me well, they took care of me, asking what I was feeling all the time, everything went well [...].”

“[...] I felt better here, I did because it’s the only complete hospital here, with all the doctors, there’s everything. [...] when I started feeling the pain, I went to take a very cold bath, then the pain increased even more [...].” (Jasper)

Discussion

The woman in the parturition process revealed her fear based on her conception of danger, in which she refers to the concern with the pregnancy, delivery and the baby’s health. The woman, in the parturient mode of being, fears for childbirth, worries about whether the baby will be born healthy and, mainly, how to take care of her child and integrate him/her into the family. That is, the human condition refers to concern and care, and to the way of coping with the world that is experienced by temporality.

As a mode of disposition, the phenomenon of fear is analyzed, from the perspective of what is feared, the fear of something determined. Hence, in fear, what is feared, the fearful, is something characterized as a threat, has the conjunctural mode of the damage, which is shown within a context.

In this sense, the childbirth is something fearsome, involved in a context of prejudices, myths, as non-physiological and a possibility of death, as a known stranger. The fearsome appeared in the women’s discourse as manifestations of childbirth, which threatens the life of the woman giving birth, the infant and causes pain.

Fear can also extend to others; in this case, the woman thinks about the child and how (s)he will be. This fear instead of the other, in most cases, happens when the other does not fear. Fearing instead of the other is a mode of disposition together with the others, it is “feeling frightened”, not as ‘feelings’ but as existential modes. However, different possibilities of being frightened emerge (timidity, shyness, fear), considering that the constitutive moments of the whole fear phenomenon may vary.

Fear is divided into: dread, which is something known that can happen; horror, which is something unknown that arrives suddenly; and terror, which is the junction of the two, something known that arrives suddenly. Dread is the fear that transforms when something known and familiar is threatened, which is near and suddenly takes form for the being-in-the-world. Horror happens when fear is transformed through something not known and takes place for the being-in-the-world. And terror is when the threatening, something known and familiar, comes suddenly and concretely to the being-in-the-world, characterized as dread and horror at the same time. It is revealed in the discourse when they report on the moment they think of the pain of parturition. That is, the reference of dread is, at first, something known and familiar, being sudden,
Phenomenology as a possibility for a close look at midwifery practices

The birth is familiar to her, because she has heard about or experienced it, but the pain is unbearable, she does not assume this possibility for herself. But when she suddenly discovers herself during the parturition, the disposition changes and the woman shows herself in the mode of being of dread, characterized as dread and changing to horror, and her discourse gains the sense of terror. It is only when the threat comes as something unfamiliar, that is to say, the horror, characterized at the same time as sudden, that is - dread, that it constitutes the mode of disposition of terror.(11)

In the fearful way, the woman shows herself as she is not, and keeps busy with the pain of giving birth. In this occupation, permeated by fear and impersonality, she does not show herself either. Thus, her individual and social circumstances and her condition of being a parturient, while being-in-the-world, thrown into normal childbirth, involve the experience of fear and pain, as well as the threat of death.

The woman is afraid and this fear opens the discovery that triggers a set of situations in her life. Fear is established in her daily life, given the facticity of being a child. Thus, the health professional’s comprehensive posture during labor emerges as a possibility to reduce the fear, due to the attention she can receive. It should be highlighted here that, although women know their rights and these are protected by law, most of the time, they feel unable to challenge when these are disrespected. Women tend to be existentially fragile. Therefore, an ethical position becomes necessary, committed to the right to information, respect for diversity, acceptance and affirmation of the status of citizen by the workers becomes necessary, permitting understanding and mutual assistance to women in the parturition process. This means saying and perceiving, the need for transmutation from the technocratic model to a care model that is revisited in the sciences of understanding.

The modes of disposition are the ways in which relationships with the world, the different ways of being and the feeling of being human are established. In this movement, existential situations exist that present expressions of how people feel and build themselves. Latent dispositions are awakened by the experience of daily life. In relating with the professionals, the woman giving birth can establish an involving and significant relationship. Heidegger designates this way of relating, as described earlier, as solicitude, characterized by considerateness, patience or tolerance towards the other.(9)

In the disposition of being-there, existing in relation to things and with others, care is related to something that has been understood and though which the being-there deploys solicitude, which implies concern. The philosopher describes a sense of solicitude, which is to be willing to take care of the other. In the statements, the women are being-with the baby in the womb and with the health team. In phenomenology, thinking and talking about care implies understanding how this phenomenon takes place and reveals itself in the human, not as an independent object. Care as a way-of-being, when the person departs from him-/herself and focuses on the other with care and solicitude. Care is taken in the formation of pairs, care only exists if there is a caregiver and a being who receives care. In Turquoise’s testimony, we observe this construction in her experience.

Care only emerges when one’s existence matters. Then, the person dedicates himself to the other, is willing to participate in his destiny, searches, suffering and his conquests, in short, his life, as can be observed in the testimonies. The opening or closing of being-there rest on being-with the others. “Being open makes it possible to apprehend the meanings of what appears, whether of the entities of the world, or of the being to himself. Thus, the opening of the being-there is described through existential structures called “understanding, disposition, interpretation and discourse.”(4)

In the mode of disposition of the opening, the they appears, which is for Heidegger the way in which the being-there shows itself most frequently. The they remains factually in the publicity and watches over the being for everything that drives him, while what is paramount and a priority is suppressed. Publicity, uniformity and estrangement
involve and control every way in which the world and the being-there are interpreted. “Everyone is another and nobody is himself.” The being is veiled by the other. In the existential comprehension of the individual, we perceive that there is no human without care, whether he is a health professional or not, all human beings are engaged in the act of caring and, as such, in the involvement and interpersonal relations, there will always be care in the attempt to understand the dilemmas, conflicts, or even adverse and external existential situations, as revealed in Crystal’s statement.

The unveiling of the midwifery practices for the woman in the parturition process point to care as an essential attitude in the health actions. Caring goes beyond the execution of technical procedures, requires the valuation of the parturient women’s unique needs and should be added to the psychological, social, emotional and spiritual aspects. To reach this mode of care, a network needs to be woven with a theoretical-philosophical construct in order to include the defense of life, the dignity of the female body in the dimension of care, through the comprehensive mode of caring.

An existential movement of the professional is therefore necessary through education with thinking that is based on the continuity of life, with care as a purpose for human life. And from this perspective, we argue like Heidegger that care is involved in the understanding of the being-there that speaks of and to himself, in search of a pause in the phenomenon of solicitude as a foundation available to understand the phenomenal structure of existing in the world, experiencing the parturition process.

Conclusion

The comprehensive analysis took place by unveiling the senses expressed by the woman’s experience in the parturition process. Fear could be understood in the experience of normal birth, the woman’s solicitude in the disposition to be herself, experiencing care as being-there in the parturition process, the mode of occupation as nearby in the midwifery practices, the manifestation of the care for the woman in the parturition process in the shared world of being-there in the welcoming and the ambiguity as a mode of disposition: the desire of becoming. The statements on the practices, based on the comprehensive analysis, pointed to the need to create a space of possibilities for discussion, establishment and implementation of the humanization proposal of childbirth and birth as public policies. There is a mismatch among the evidence-based practices, comprehensive care and daily care for the parturient. This imbalance is linked to the inauthentic mode of care, constantly occupied, and on the they. It was also revealed that the development of a relationship of humanization and dignity in health care can become a phenomenological attitude, which is characterized as comprehensive and interpretative, considering the intersubjectivity and respect for the human, based on needs, meanings and senses, as well as the various ways of dealing with the health/disease phenomenon in the existential daily reality. In this sense, the phenomenological method as the axis of health practices, and especially for midwifery, contributes to humanization and health promotion, as its assumptions and approaches are closely related to the conception of human being, the protagonist of care. We argue that the practices implemented in the parturition process are based on the comprehensive mode of solicitude, centered on the woman’s existential dimension, linked to the horizon of existentiality and the open way of being-in-the-world.

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Collaborations

Cavalcante RJG, Moreira RCR, Peñarrieta ECS and Barrêto LGP declare that they contributed to
the conception of the Project, data analysis and interpretation, writing of the article, relevant critical review of the intellectual content and final approval of the version for publication.

References

Patient identification in the records of health professionals

Identificação do paciente nos registros dos profissionais de saúde

Identificación del paciente en los registros profesionales de salud

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Abstract
Objective: Identify the conformity of patient identification data in the records of health professionals from three public hospitals in Rio Grande do Norte.
Methods: A cross-sectional study was carried out at the medical and surgical clinical nursing wards of three public hospitals in Rio Grande do Norte, Brazil. The sample consisted of patients hospitalized in these wards for at least ten days, between October and November 2016. The data were analyzed descriptively, using absolute frequencies and the Pareto Diagram.
Results: Non-conformity was found in the header data birth date and affiliation, which was responsible for 61% of inadequacies in the medical evolutions, 65% in the nursing team notes and 62% in the opinions of doctors and the other categories.
Conclusion: The study revealed that the headers of the health professionals’ records in the hospitals analyzed do not guarantee correct patient identification and patient safety.

Keywords
Patient safety; Health personnel; Communication; Hospital

Descritos
Segurança do paciente; Profissional da saúde; Comunicação; Hospital

Descritores
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Introduction

Correct patient identification is an action that guarantees care and minimizes the occurrence of errors and damage. It is, therefore, the first activity that advocates in favor of patient safety (SP).\(^1\)

Errors in the patient identification process occur from admission to discharge from the health service and stem from factors related to the patient (level of consciousness, for example), the work process (changes in the sector, beds and professionals), among other situations.\(^2\)

Studies show that errors in patient identification lead to potentially fatal consequences and that approximately 9% of them cause temporary or permanent damage. In addition, it is important to note that this problem encompasses multiple situations, ranging from hospitalization to care by the multiprofessional team.\(^3\) In the United States, about 850 patients undergo blood transfusion each year that is not part of their treatment, and 3% of them die.\(^4\)

It should be noted that the occurrence of patient identification errors affects at least two individuals: the patient who received the wrong therapy and the other whose treatment was omitted.\(^3\)

To overcome this problem, several initiatives have been promoted. Among them, in the international context, the project “Solutions for Patient Safety” is highlighted, which sets priorities for the implementation of patient safety, such as: correct identification of the patient; effective communication among health professionals; safety during medication prescription, use and administration; safe surgery; hand hygiene; and reduced risk of falls and pressure ulcers.\(^5\)

In the Brazilian reality, the National Patient Safety Program (PNSP) was established through Administrative Rule 529, on April 1, 2013, which proposes that health services construct protocols, guides and manuals focused on the different areas of patient safety, such as patient identification processes.\(^6\)

In that context, initiatives such as the use of standardized white wristbands are used to put in practice the correct identification of the patient.\(^2\)

It should be noted, however, that this process involves several modalities beyond the use of a bracelet. The main modality and archetype for others are the headers of the health professionals’ records in the clinical history.

Therefore, we found it necessary to investigate the level of conformity of the headers of the health professionals’ records at three hospitals in Rio Grande do Norte, revealing the following research questions: do the headers of health professionals’ records ensure the correct identification of the patient? Which data do or do not conform with the correct identification of the patient? In this perspective, this study aims to identify the conformity of patient identification data in the records of health professionals from three public hospitals in Rio Grande do Norte.

Methods

This cross-sectional and descriptive study is based on the project “Monitoring of patient safety indicators in public hospitals in Rio Grande do Norte, Brazil”, approved by Consolidated Opinion of the Research Ethics Committee at the Federal University of Rio Grande do Norte 1.662.417, CAAE: 57947716.5.0000.5537, on August 4, 2016.

The study was based on the recommendations adapted from the World Health Organization (WHO) regarding the construction of the “Record review of current in-patients” - a strategy that makes it possible to investigate patient safety in hospital settings in all countries, especially in developing countries.\(^7\)

The review of medical records occurred in three public hospitals in Rio Grande do Norte, in medical and surgical clinical wards, from October to November 2016. The choice of these sites is justified by the fact that they comprise public state-owned hospitals, are large, have a Patient Safety Center (NSP) and have a clientele with similar clinical profiles. Regarding the wards, they were considered as spaces that would permit the inclusion of larger samples, enhancing the external validity of the study.
A non-probabilistic sample was used, consisting of records of patients hospitalized for at least 10 days in the hospitals mentioned above, from October to November 2016, and who agreed to participate in the study, through the signing of the Free and Informed Consent Form (TCLE) - conditions that were applied as the eligibility criteria.

Data collection was performed using an instrument built from a scoping review and validated by a patient safety expert group. Its structure consists of six thematic areas (patient identification; professional records; safety in medication prescription, use and administration; prevention of pressure injuries; prevention of falls; and safe surgery), ten subtopics, 89 items and spaces to check the alternatives “do not have”, “have” and the specifications “appropriate” and “inappropriate”, as well as to write comments.

To answer the study objective, the patient’s identification data in the records of health professionals were surveyed, which include: medical evolution, medical opinions, opinions of various professional categories and nursing records (Figure 1).

It is highlighted that the medical evolutions and nursing records were evaluated from the first to the tenth day of hospitalization. Regarding the opinions of the doctors and other categories, the first opinion requested / answered in the aforementioned period was used.

Ten reviewers of clinical histories executed the review of the medical records, all of whom were nurses enrolled in graduate nursing program courses.

The collected data were organized in the Statistical Package for Social Sciences for Windows (SPSS), version 22, and analyzed descriptively, using absolute frequencies and the Pareto Diagram, which makes it possible to identify the level of compliance of the headers in the health professionals’ records.

Figure 1. Compliance assessment flowchart of patient identification data in the professional records
Results

In total, 234 clinical histories were evaluated, being 92 from hospital A (39.3%), 120 from hospital B (51.3%) and 22 from hospital C (9.4%). This number was not a constant for the health professionals’ records, as there were variations during the ten days, due to the professionals’ absence.

Thus, the number of evaluations of health professionals’ records varied from 189 to 199 medical evolutions, between 195 and 227 notes from nursing technicians and between two and 19 notes from nurses (Figure 2).

Unlike the health professionals’ records, the number of opinions was accurate, as the evaluation occurred only once during the ten days. Thus, 78 (42.4%) medical opinions, 52 (28.3%) from the social service, 28 (15.1%) from physiotherapy, 18 (9.8%) nutrition, 4 (2.2%) psychology and 4 (2.2%) speech therapy.

Figure 3 displays the Pareto Diagrams for patient identification data in medical evolutions, nursing team notes, and opinions of doctors and other categories.

Regarding the patient identification data in the medical evolutions, a frequency of 6,165 non-conformities was found. The absence of the date of birth and affiliation accounted for more than 61% of the inadequacies.

Similar results are verified in the nursing team notes, where the date of birth and affiliation made up 65% of the incomplete records in the identification of the patient. The total frequency of non-conformity was 12,628. In the opinions, the joint evaluation demonstrated 332 cases of inconsistency, in which the date of birth and affiliation were responsible for 62% of the missing data.

In view of the above, the records of the health professionals at the three hospitals analyzed are fragile, mainly regarding the completion of the date

Figure 2. Distribution of health professionals’ records during ten-day period
Figure 3. Pareto Diagram of patient identification data in health professionals’ records: (A) medical evolutions; (B) notes of nursing team; and (C) opinions of doctors and other categories.
of birth and affiliation, aspects that negatively affect the correct identification of the patient.

Discussion

The results indicated several errors in completing the headers and, consequently, in the correct identification of the patient in the medical records.

The first issue to be discussed is the lack of records of professionals. This reality is worrisome as communication among team members was incomplete and omission of information may have triggered harm to the patient’s clinical evolution. It should be noted that records are not only a legal instrument, but also one of the sides of care.

Regarding this scenario, some suspicions arise that may be related to weaknesses in the professionals’ records or their absence, such as the lack of time and the high demand for activities in hospital settings.

In line with this assertion, researchers revealed that 78% of incidents in the hospital environment were motivated by work overload and one of the determinant for this finding, in turn, is the weakness in human resources.

In this context, it is essential to foster actions that increase the number of professionals and improve their skills and abilities. This will boost their performance.

In addition, it is essential to intervene in loco in the training institutions, concerning the elaboration of strategies that contribute to the preparation of individuals beyond the traditional and boost the ethical, critical, collaborative, transformative, reflexive and social responsibility dimensions. These characteristics contribute to a posture that converges to the patient safety culture - individuals with attitudes and behaviors focused on health management and learning from mistakes.

Regarding the nonconformities in completing patient identification data in the medical and nursing team records and in the opinions of physicians and other categories, the absence of the “date of birth” and the “affiliation” were verified, aspects that lead to a lack of patient safety.

The identification of the patient occurs throughout care and, when incorrect, it generates severe consequences, such as: wrong procedures, wrong patient exchange, wrong medication administration, among others.

Usually, for the sake of patient identification, the use of a bracelet is recommended, indicating two identifiers that enable the professional to confirm the data on the bracelet with those contained in the clinical history. These are: full name of the patient and/or date of birth and/or health service registration number and/or full name of the mother.

Thus, the information in the clinical histories is one of the main steps for correct patient identification, an aspect that requires the conformity of the headers present in the professional records - a premise not attested in this study, as the two main identifiers (“date of birth” and “affiliation”) were absent 12,133 times in the revised records.

Although this fact is worrisome, the disclosure of research aimed at a broader and specific understanding of the professionals’ practices regarding the theme of correct patient identification - such as the completion of headers in the clinical history forms - is incipient.

Nevertheless, it has been evidenced that this reality of insecurity for the patient is not restricted to the region investigated, as other Brazilian and international studies have identified it.

In Australia, for example, where written and spoken communication was evaluated in the light of information transfer tools - The Nursing Handover Minimum Dataset (NH-MDS) and Identification of the patient and clinical risks, clinical history/presentation, clinical status, care plan and outcomes/goals of care (ICCCO) - demonstrated that, only 3.3% of the nursing records contained the correct identification. The main non-conformities were the patient’s name and age.

Regarding this aspect, it is highlighted that the non-conformity of patient identification data in nursing notes increases the chances of incidents, a reality that is inconsistent with the assumptions of the International Council of Nurses’ international code of ethics for nurses, which states that one of
the functions of nursing is to adopt “(...) appropriate measures to safeguard individuals, families and communities” (19).

In Brazil, a cross-sectional study on the improvement of the patient identification process revealed that, among the inadequacies, the incompleteness of the headers in the professional records stand out, which should contain, as a minimum, the patient’s full name, date of birth and health service registration. (16)

It was also observed during the investigation of medication-related incidents at a Brazilian university hospital that 8.1% of the errors in drug therapy presented the patient’s inadequate identification as the root cause. (18)

In a Brazilian obstetric health unit, researchers (17) reported that 81.9% of the hospitalized women had the first names with identical spelling and/or phonetic similarities, a situation that poses a patient safety risk if no actions are implemented for the sake of correct patient identification.

Regarding the analysis of the Pareto Diagrams of this study, it is evident that the actions to improve the quality of patient identification in the three hospitals investigated should prioritize the appropriate completion of the date of birth and affiliation in the specific fields of the professional records, which will enhance patient safety.

Thus, these two identifiers need to be legibly recorded and the following recommendations need to be adopted: 1) date of birth in DD / MM / YYYY format (example: 07/06/2005); and (2) affiliation shall preferably contain the full name of the patient’s mother. (2)

Among the tools to encourage the use of the aforementioned recommendations, educational processes (20, 21) that cover content related to patient safety and written communication are mentioned.

In view of the above, the findings of this and the aforementioned studies attest a worrying reality for patient safety, an assertion that lacks initiatives that can improve patient identification in health contexts, especially the hospital.

Because this study was based on the analysis of clinical histories, the main limitations are related to these records’ illegibility and disorganization. In addition, the complexity of the data collection instrument may have caused a tedious completion process and, consequently, subject to errors - it is important to point out that, in order to overcome this situation, the research team carried out systematic evaluations to identify possible inconsistencies in the collection stage, as well as meetings, from the beginning of the research, to verify the experiences and difficulties the reviewers experienced. These activities were essential to equalize the data collection stages and mitigate information bias.

Regarding the findings, the fact that the review of clinical histories was limited to a single region makes it impossible to carry out an extended evaluation of the results, an aspect that demands the need for multicenter studies.

**Conclusion**

The study highlights that the records of the health professionals at the hospitals analyzed do not guarantee the correct identification and, consequently, the safety of the patient. Thus, non-compliance in the “date of birth” and “affiliation” data was verified in all categories of records: medical evolution, nursing notes, opinions of medicine, physiotherapy, occupational therapy, nutrition, psychology, speech therapy and social service. These findings arouse concerns that go beyond the field of the patient’s correct identification and reach the other aspects of care - diagnosis, treatment, procedures, among others - as the clinical history is one of the means for team communication. In other words, the question is raised whether the other elements of the professionals’ records are in line with those obtained in this study. Thus, we believe that one of the ways to anticipate fragilities in patient identification and in the other structuring axes of patient safety is professional training, from undergraduation to permanent education. In this sense, this study contributes to the discussions/reflections about the written communication, specifically the patient identification in the records of health professionals, which can collaborate with the promotion of strategies that anticipate the fragilities identified and strengthen patient safety.
Collaborations

Alves KYA, Salvador PTCO, Martins CCF, Santos VEP participated in the conception of the project. Alves KYA, Chiavone FBT, Barbosa ML and Saraiva COPO collected the data. Alves KYA and Santos VEP contributed to the interpretation of the data, writing and critical review of the article. Santos VEP approved the final version for publication.

References

The strength of information on retinoblastoma for the family of the child
A força da informação sobre retinoblastoma para a família da criança
La fuerza de la información sobre retinoblasma para la familia del niño

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Objective: To understand the need for information from the family members of children with retinoblastoma.

Methods: A qualitative study based on the Patient and Family Centered Care Model. Families of children undergoing treatment at a referral institution in pediatric oncology participated. Qualitative content analysis guided the data collection and analysis.

Results: The strength of information on retinoblastoma for the family of these children reveals the value the family assigns to the information about the child’s illness during a time of intense suffering; the paths they take to obtain the information; and, the elements considered to be essential to feel fulfilled in their own right.

Conclusion: Provision of information that respects the family’s time is essential; it must be honest, and contemplate future perspectives for the child, in a dialogical space. Thus, a practice based on the Patient and Family Centered Care Model is promoted.

Keywords
Retinoblastoma; Neoplasms; Child; Family; Health communication; Information

Abstract
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Resumen
Objetivo: Comprender la necesidad de información de la familia del niño con retinoblasma.

Métodos: Estudio cualitativo fundamentado en el Modelo de Cuidado Centrado en el Paciente y la Familia. Participaron familias de niños en tratamiento en una institución de referencia en oncología pediátrica. A Análisis Qualitativo de Contenido guió la coleta e análisis de los datos.

Resultados: “La fuerza de la información sobre retinoblasma para la familia del niño” revela el valor que la familia atribuye a la información sobre la enfermedad del niño en un momento de intenso sufrimiento; los caminos que transita para obtener información; y los elementos que considera esenciales para sentirse atendida en su derecho.

Conclusión: Resulta esencial que la oferta de información respete los tiempo familiares, sea honesta, contemple las perspectivas de futuro para el niño, en un espacio dialógico. De este modo se promueve una práctica fundamentada en el Modelo de Cuidado Centrado en el Paciente y la Familia.

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Introduction

The diagnosis of retinoblastoma, a rare type of intraocular malignant tumor that affects children usually before the age of five, results in intense family emotional distress. As a previously unknown context for the family, important decisions need to be made about how to manage the disease, in a short period of time, considering that early diagnosis increases the chances of cure; however, if delayed it can spread to other parts of the body, with a poor prognosis. (1)

Parents need to assimilate, in the short term, the diagnosis, surgery, and treatment needed, which require their understanding of the disease process and they must learn to cope with the rapid changes that occur. A two-way communication with the family members must be provided, providing information and listening to their doubts. (2) Shared information with the family members can help them to understand the situation and directly influence their decision-making and skill acquisition. When parents know about their child’s illness, they feel more in control of the situation they face, and the feelings of guilt and insecurity decrease. (3) Studies have shown that knowledge on the disease is of crucial importance to parents, and that education through provision of information is essential. (4-6)

The exercise of the right to health information is a precondition for patient and family empowerment, so that they exercise the different possibilities of their health-related choices. In this process, the health professional is essential in the dissemination of information, as an intermediary for communication. (7)

This study is linked to a university extension project, (8) which aims to bring students closer to the reality experienced by families of children with cancer who are receiving care at a pediatric oncology institute, and to promote the exchange of knowledge among family, students and professionals of the team in order to contribute to better care practices. From the lived experiences in this scenario, it was possible to understand that for the family of a child with retinoblastoma, demands for information are revealed during patient care. So, listening to the family was considered relevant, as a basis for the proposal of innovative actions for the provision of information.

The objective of the study was to understand the need for information from the family of the child with retinoblastoma.

Methods

An exploratory-descriptive qualitative study designed to understand the phenomena according to the participants’ perspective. The philosophy of Patient and Family-Centered Care (PFCC) (9) was the framework of reference used to understand the need for family information related to the care of child with retinoblastoma.

The Institute for Patient and Family-Centered Care (IPFCC) defines PFCC as a partnership-based planning, delivery, and evaluation of health care, grounded in mutual benefits among patients, families and health care providers. (9) This model advocates including the family members in planning, considering their influence on the patient’s health, and as a partner in improving the care practices and the care system. It is a philosophy designed for patients of all ages, and can be practiced in any health service by all health professionals. It is based on four central assumptions: (9)

Dignity and respect: Health care practitioners listen to and honor patient and family perspectives and choices. Patient and family knowledge, values, beliefs, and cultural backgrounds are incorporated into the planning and delivery of care.

Information shared: Health care practitioners communicate and share complete and unbiased information with patients and families in ways that are useful, and which receive timely, complete and accurate information in order to effectively participate in care and in decision-making.

Participation: Patients and families are encouraged and supported in participating in care and decision-making at the level they choose.

Collaboration: Patients and families are included as a supporting base for the institution; health care leaders collaborate with patients and families in pol-
icy and program development, implementation and evaluation, and in facilitating health care in professional education and in the delivery of care.

In this sense, information is critical to the child’s and the family’s care, through which the health team shares its knowledge according to the needs and available time of the family, and families also participate in care and share important information that is included in the planning of care.

The methodological framework that was used was Qualitative Content Analysis,(10) which aims to develop a condensed and broad description of the phenomenon studied, resulting in concepts or categories that describe it.

The study was conducted at a pediatric oncology institute, in the city of São Paulo. It is a non-profit social institution that assists children with cancer, from birth to 18 years of age, derived from several states of Brazil and other Latin American countries. The institution is a reference site in the care of children with retinoblastoma, reaching cure rates of approximately 90% if diagnosed early.

The care provided at the institution is predominantly outpatient. The child with retinoblastoma undergoes consultations with medical professionals and with specialist nurses in the area, as well as being referred to other specialties depending on the demand required.

As inclusion criterion, we defined families of children who had been diagnosed with retinoblastoma for at least one month and who were receiving outpatient treatment, as it is known that a great amount of information is shared with the family during this period, due to the rapidity of events that happens between diagnosis and initiation of treatment. Families of children without the possibility of cure were excluded, in respect for the suffering experienced at that moment.

The study was conducted between April and October of 2014, using semi-structured and individual interviews with each family, whose members could be together and participate at the same time, if desired, in a reserved space in the institution; these were recorded to ensure that no data were lost. At first, the genogram and the ecomap of the family were developed, in order to bring the researcher closer to the reality of the family.(2) Then, the interviews were begun, using the guiding questions: Tell us, how was it for you (family) to receive information on (child’s name)’s illness? What do you consider relevant to know about the disease situation and/or treatment in order to be able to take care of your child? Other questions were formulated, as the interview progressed, to provide further clarification and facilitate the researcher’s understanding of the need for information perceived by the family in the course of the disease, such as: What information did you consider relevant? How did you find out about the disease? What about the treatment? After each interview, the researcher wrote down his observations and perceptions.

All the narratives were transcribed in their entirety by the researcher, and were later analyzed according to Qualitative Content Analysis.(10) In the categorization stage, the codes were grouped according to their significance and conceptual similarities or divergences, which gave rise to the categories. Finally, common themes between categories and subcategories were chosen, and the relationship between them was identified, based on their agreement, antecedents or consequences.(10)

At the beginning of the data collection, participants received information on the purpose of the study, the data collection procedure, and the ethical implications. They also read and signed the Terms of Free and Informed Consent Form. To preserve the anonymity of the participants, the interviews were identified with the letter “E” (Interviewee), followed by an Arabic numeral indicating the sequence of interviews.

Ethical requirements established in Resolution 466/2012 of the National Health Council were fulfilled, and the research was approved by the Ethics Committee on Research Involving Human Beings of the Institution of higher education, under decision number 655.931/2014.

Results

Ten families of ten children diagnosed with retinoblastoma participated in the study, represented by
nine mothers and one grandmother. Although the majority of the participants were the mothers of the child, the focus was on the family as a whole, in order to understand how its members deal with the information they do and do not receive from the professionals. The characteristics of the children and their families are presented in chart 1.

**Chart 1.** Characteristics of the family, according to the degree of kinship and age and of the children, age and position in the family, diagnosis, diagnosis time, and treatment status at the time of the interview

<table>
<thead>
<tr>
<th>Family</th>
<th>Family age</th>
<th>Current child age/position in the family</th>
<th>Diagnosis/time of diagnosis</th>
<th>Treatment status at the time of the interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 (mother)</td>
<td>21 years</td>
<td>4y/1st child</td>
<td>Unilateral RB/4m</td>
<td>Enucleation + Chemotherapy</td>
</tr>
<tr>
<td>E2 (mother)</td>
<td>26 years</td>
<td>3y/1st child</td>
<td>Unilateral RB/8m</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>E3 (mother)</td>
<td>21 years</td>
<td>2y/1st child</td>
<td>Unilateral RB/7y</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>E4 (mother)</td>
<td>21 years</td>
<td>1y/1st child</td>
<td>Unilateral RB/1m</td>
<td>Enucleation</td>
</tr>
<tr>
<td>E5 (mother)</td>
<td>38 years</td>
<td>2y 6m/3rd child</td>
<td>Bilateral RB/2y/3m</td>
<td>Enucleation</td>
</tr>
<tr>
<td>E6 (mother)</td>
<td>45 years</td>
<td>2y 9m/1st child</td>
<td>Bilateral RB/2y/6m</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>E7 (mother)</td>
<td>28 years</td>
<td>1y/1st child</td>
<td>Bilateral RB/5m</td>
<td>Enucleation + Chemotherapy</td>
</tr>
<tr>
<td>E8 (mother)</td>
<td>25 years</td>
<td>2y/1st child</td>
<td>Bilateral RB/2y</td>
<td>Follow-up</td>
</tr>
<tr>
<td>E9 (mother)</td>
<td>29 years</td>
<td>8m/1st child</td>
<td>Bilateral RB/7m</td>
<td>Enucleation + Chemotherapy + laser therapy</td>
</tr>
<tr>
<td>E10 (grand mother)</td>
<td>45 years</td>
<td>3y/1st child</td>
<td>Unilateral RB/3y</td>
<td>Outpatient follow-up</td>
</tr>
</tbody>
</table>

Rb - retinoblastoma; Age in years (y) and months (m)

The analysis enabled the identification of the topic, “The strength of information on retinoblastoma for the family of the child”, which reveals the value that the family attributes to the information about the child’s disease, his/her chances of survival, the therapeutic procedures, the paths they take in order to obtain the information, and the elements considered essential to feel fulfilled in their rights, in a time of intense suffering caused by the discovery of the cancer. This topic is composed of the categories: suffering intensified by lack of information; searching for their right for information; and, essential elements of information from the perspective of the family, which are presented below.

**Suffering intensified by lack of information**

The family members of the child with retinoblastoma experiences intense suffering, from the moment they perceive something different in the child’s eyes and do not know what it is, which triggers restless-ness in the family which then seeks information from specialists. However, their suffering is intensified when they are referred to other specialist centers without further explanation, and also when the child is subjected to numerous tests without information about what is happening, leading to expectation of the results.

“They just kept taking tests, tests, tests, and finally we were sent here (hospital), but they also did not tell me why (E4).”

“In fact, I did not know what the exam was going to look like, I just learned after they opened it. It has to be done with them (children) sleeping, to take the pictures, and they showed several pictures of how it is inside the eye, but they did not tell me any of this (E1).”

With the confirmation of the diagnosis, the fear comes, because they do not understand this disease and the reason for it having affected their child. The despair and panic of losing their child are present; for the family, the word “cancer” is related to death. The unknown scares the family and makes them insecure about what is to come.

“It was very difficult; it was a shock for us. Knowing that a tumor like that is in a young child, we were scared (E10).”

“We did not know, we had never heard of it. Where we live, nobody ever told us about retinoblastoma (E3).”

Even when the family receives adequate information, the situation is difficult for them to understand, because they are impacted by the news, fear, and stress. They need some time to process the information so they can understand what is happening.

“And even with him (physician) explaining everything to me, the day he (child) had to have the operation, I didn’t want to authorize it, I didn’t want to sign the authorization. It was very painful (E1).”

“At the time we got very nervous and sometimes it hasn’t hit me completely. At the time it hit me, it happened gradually. As the time was passing, I understood better the situation. At that moment (or right there) we were shocked and didn’t understand what was happening (E5).”

**Searching for their right for information**

In addition to the suffering experienced by the family due to the examinations and the revelation of
the diagnosis, there is a movement to understand the situation in the best possible way. Right then, having access to information is critical. The family members want to know about the illness in order to understand what is really going on with their child, to decide on the best treatment, and to make all necessary efforts to obtain it.

[...] they (professionals) explain everything. When we came here for the first time, he (physician) explained this, that his eyes could be removed. But, because we came at the beginning, it was not necessary, it would be able to be controlled, and thank God, it was. (E10) It is extremely important that you go after, run after this information, no matter where it comes from(E2)

For the family, being able to understand what is happening to the child is paramount, and this knowledge can also come from the interaction with other families who are experiencing the same situation. In this exchange of information, the family members understand that they are not alone.

It’s important for us to know about the disease he has. Knowing that several cases like that exist, that he (child) was not the only one, that many children have it (E5).

When the family receives information, whether it is about the disease or about the resources available for diagnosis and treatment, they feel safer and at peace, believing that the child will receive good treatment and a better chance of cure. In his view, knowledge about retinoblastoma is a right that should be guaranteed through media outreach, which would save many lives and reduce the number of children who lose vision, because of delayed diagnosis. However, if the information is not clear, or if the family wants to know more about the disease and its evolution, one of the means that they use to get it is on the internet. However, due to the diversity of content in the digital environment, one is frightened by images seen.

But I think that television should publish more about it, for all, newspapers, it would be important for all children, for everybody, it is our right to know ... It would have helped me to understand and often saved many children who do not have more ways to save the little eye (E3).

I’ve seen a lot more advanced cases, do you understand me? And his, thank God, it was not like this case that I saw on the internet, so I preferred not even to have looked, to have just looked at his (E4).

**Essential elements of information from the perspective of the family**

The family members of the child with retinoblastoma aim to receive information about the disease and treatment; however, they consider it fundamental for their time for information assimilation to be respected, to understand the information that is revealed to them.

At the time the physician speaks we are very nervous, I just cried nonstop, and could not understand many things, sometimes it hasn’t hit me, it happened gradually, and as the time was passing, I understood better the situation. At the time we are shocked and don’t understand what is happening (E5)

In this sense, the family considers it to be important that professionals open spaces for dialogue, in which there is clarification of their doubts and desires. In addition, the family considers that the honesty of the information, from the beginning, makes the relationship with health professionals more transparent. Thus, the family, empowered with the information, becomes more active and participatory during the treatment.

An interesting thing would be if he (the physician) could be one day here to clear up our doubts [...] It would be great to talk to the person who is dealing exactly with your child’s problem (E2)

I think it has to be like that, as we have a problem, we have to talk about it, it does not help to “run over”, it has to be the way it is and that’s it. There is no sense in picking the words for it ... we have to talk about what it is (E5).

They also consider that it is relevant to know about the future prospects of the child, about everything that can happen to him. This supports them and gives them a sense of security in the moment they are living. The consequences of treatment and prognosis can be understood much more, and help them to maintain hope that their child can have a better future.

The part of the prosthesis (eyepiece), which I found interesting, which I did not know, helps a lot. We have seen some children who have a prosthesis and we do not know
The strength of information on retinoblastoma for the family of the child

which one is the real eye and which one is the prosthesis. I was very worried at first about this, of it not looking the same. I’ve found this very important to know (E9).

Discussion

The family of the child with retinoblastoma is composed of young parents with small children, who are in the process of expansion through the birth of children. The discovery of the disease, at that moment, imposes many demands, added to the normal tasks of this phase of family development, triggering a crisis. (2)

In this study, the family members reveal the strength that information give them to understand what is happening to their child, indicating gaps in communication with professionals and their search for the right to be informed about the disease, its evolution and treatment, as well as the feelings involved in this process. The family members are eager for information, value all aspects related to the health state of the child, and the knowledge of the implications that may influence their future.

However, health professionals are still not very effective in providing for the information needs of the family members, as they appear to have an unclear perspective on what they value, which contributes to increasing parents’ anxiety and insecurity. (11)

Uncertainty about the disease is directly linked to insecurity. In this sense, it is known that sharing information with the family is able to empower them, which is helpful for making decisions. (9) Empowerment by means of information plays a fundamental role in the process of self-transformation of the person, insofar as which provides an environment of change, with the aim of providing individuals with autonomy. (7)

A study conducted by Israeli authors (2) with 12 couples in the management of the diagnosis of a child with retinoblastoma showed that: a) parents who understood their child’s current situation better dealt with difficulties and anxieties; b) parents who had more ability to separate rational and emotional elements coped better with the experience; c) the support of the multiprofessional team and of parents who have experienced this situation was relevant to helping them to cope.

Information about the child’s cancer is a constant need of the family. It is known that it changes, in terms of content and amount of information, according to the moments experienced by the child and his family. Therefore, it is fundamental to have a communicative exchange between the health professionals and the family, in addition to the subsidy of educational materials and strategies that transmit the information in a clear and objective way. (12)

The professionals who work in the hospital space can and should contribute to the construction of knowledge, sharing information with the family, considering that the hospital is also a pedagogical space. In this sense, educational materials are important allies because they help in cases of doubts and direct care, as well as with standardizing the guidelines to avoid contradictory information. (13) However, regardless of the information strategy adopted, the health professional needs to manage how the information is given to the family. Parents often feel confused by the available information, and the effort to understand and manage everything is described as being similar to learning a new language. (12)

In a study (14) published in the United States of America, the authors developed a tool to facilitate parents’ understanding of the complexity of and risks associated with retinoblastoma, denominated the DePICT (Disease-specific electronic Patient Illustrated Clinical Timeline), which displays real-time information on the full course of treatment in addition to the child’s clinical data. The study shows that graphical tools can help with the reasoning and understanding of complex ideas with precision and efficiency. The evaluation of the tool showed its usefulness, which facilitated the understanding by the parents, even those who had difficulties in understanding about the treatment and the prognosis due to educational limitations.

In addition, the family wishes to receive information during all stages of the disease. (15) However, it is necessary to respect the time needed for understanding and comprehending the information. Authors (16) recommend that, in the diagnostic phase, the flow of information should be considered “one-way”, that is, of health professionals to parents, so that trust is based on the perception that professionals have the
specialized knowledge to take care of the child. In the learning phase, the flow of information should be considered as a “two-way”, that is, between parents and professionals, in order to know much more about the family’s daily life, care, and abilities to care for the child, developing a mutual trust, a bond and, consequently, improving communication between both, for the family to help and participate with the appropriate care for the child.\(^{(16)}\)

Thus, it is understood that effective communication between the health professional and the family members provides significant support in the course of the disease. The family members leave the role of passive subjects and begin to interact with the team to expose their doubts, their anguish, and their feelings during the treatment.\(^{(17)}\)

Information has been identified to be a crucial element, which needs to be taken into account by the team to provide good care for the family members, who are anxious and often do not understand what they are told, and feel powerless due to events that cannot be predicted. The nursing team should provide information to the family about the health of the child, in order to gain their confidence, because good communication between the nurse and the family reduces anxiety and increases the family’s participation in the care of the child.\(^{(18)}\)

In this study, individual interviews were used with the family members who had the experience of a child with retinoblastoma. In view of this, broader studies are suggested, including health professionals as participants, in order to deepen the understanding of the need for family information and communication between the family and the professional.

It is hoped that this study will lead to initiatives to assure the family members their right to information. It is recommended to adopt an institutional policy that encourages investments to guarantee the family access to information.

**Conclusion**

The study showed that sharing information with the family present gaps that compromise the quality of the care provided, since, although there is a communication between the professionals and the family, the information is not available in a complete and continuous way. The study revealed the value that information has for the family, and the essential elements considered to cope with the situation, such as respect for the time they need, and honesty, including information about the disease, treatment, prognosis and future prospects for the child, in a dialogical space so that they can be received and have their doubts clarified. For information to be effective, it is necessary that it gets to the family and that the family understands it. It is fundamental that the health team recognizes the right of the family members to receive information, and incorporates strategies that promote their involvement and participation, so that the shared information is converted into their knowledge and empowers their decision-making. The development of educational materials is recommended, which should contain information about retinoblastoma, so that the family can use it according to their own time, allied to a continuous space of listening and welcoming, promoting dialogue and clarification of their doubts. It is about guaranteeing their right to information.

**Collaborations**

Amador DD, Marcilio AC, Soares JS, Marques FRB, Duarte AM e Mandetta MA contributed to the study design, data analysis, article writing, relevant critical review of the intellectual content, and final approval of the version to be published.

**References**


Objective: To analyze antimicrobial distribution and costs in primary care of a capital city in the Northeast region of Brazil.

Methods: Cross-sectional, analytical study, developed in the city of Teresina, in the state of Piauí, Brazil. Data cover the period from June 2015 to July 2016. Descriptive statistics and the Kruskal-Wallis test were calculated to compare the medians of the independent data distributions.

Results: A total of 1,651,516 antimicrobials were distributed in 15 different types, with amoxicillin (500mg) being the most distributed (75%) in psychosocial care centers, and in the basic health units (47%). The total cost for the period was 98,705.00 BRL. There were no statistically significant differences among the costs medians in each zone of the studied municipality.

Conclusion: These drugs are irregularly distributed among the units, according to the demand. The supply does not follow a specific protocol, and a possible increase or reduction in demand is not investigated.

Abstract

Objetivo: Analisar a distribuição e custos de antimicrobianos na Atenção Primária de uma capital da Região Nordeste do Brasil.

Método: Estudo transversal, analítico, desenvolvido em Teresina, Piauí, Brasil. Os dados contemplam o período de junho de 2015 a julho de 2016. Calculou-se estatísticas descritivas e o teste de Kruskal-Wallis para comparar as medianas das distribuições de dados independentes.

Resultados: Foram distribuídos 1.651.516 antimicrobianos de 15 tipos diferentes dos quais a amoxicilina (500mg) foi o mais distribuído (75%) nos Centros de Atenção Psicossocial e nas Unidades Básicas de Saúde (47%). O custo total no período foi de 98.705,00 reais. Não houve diferenças estatisticamente significante entre as medianas dos custos em cada zona do município estudado.

Conclusão: A distribuição desses medicamentos é realizada de forma irregular entre as unidades, de acordo com a demanda. O fornecimento não segue protocolo específico, e não se investiga um possível aumento na demanda ou redução.

Resumen

Objetivo: Analizar la distribución y costos de antimicrobianos en Atención Primaria de una capital del Noreste de Brasil.

Método: Estudio transversal, analítico, desarrollado en Teresina, Piauí, Brasil. Los datos contemplan el periodo de junio de 2015 a julio de 2016. Se aplicó estadística descriptiva y el Test de Kruskal-Wallis para comparar las medianas de las distribuciones de datos independientes.

Resultados: Fueron distribuidos 1.651.516 antimicrobianos de 15 tipos diferentes, de los cuales la amoxicilina (500mg) fue el más entregado (75%) en Centros de Atención Psicosocial y en Unidades Básicas de Salud (47%). El costo total durante el periodo fue de 98.705,00 reales. No hubo diferencia estadísticamente significativa entre las medianas de costos en cada zona del municipio estudiado.

Conclusión: La distribución de estos medicamentos se realiza de manera irregular entre las unidades, de acuerdo a la demanda. La provisión no cumple protocolos específicos, y no se investiga un posible aumento o reducción de demanda.
Antimicrobials are one of the most frequently distributed and used drugs in health services, accounting for almost a third of medical prescriptions. They are considered one of the most remarkable drugs to impact not only on the patient being treated, but on the whole ecosystem in which he/she is inserted, because these drugs irrational use has contributed significantly to antimicrobial resistance (AMR), a global threat to public health.

The AMR phenomenon is complex, but it is a natural biological process that arose with the use of antibiotics in the treatment of infections, and was enhanced with the irrational use of antimicrobials. It is understood as the ability of microorganisms to multiply even in the presence of high concentrations of antimicrobials, and is related to the use of this medicine in all environments, either at home, in (primary, secondary or tertiary) healthcare settings, or in other sectors of activities, such as agriculture.

Data from a multicenter study in 28 European countries point to an association between increased antimicrobial resistance and managerial quality of the government, suggesting that countries where the quality control of this class of drugs in humans and in other animals is poor show increased rates of microbial resistance and dissemination.

Although hospital care is heavily responsible for increased AMR, the literature provides evidence that primary care can lead to an irrational distribution of antimicrobials, increasing costs and contributing to increased resistance. In addition, due to the large number of units that provide outpatient care in Brazil, it is believed that antimicrobial use can be compared to that of hospitals. For instance, a study carried out in the state of Rio de Janeiro, Brazil, found that most antimicrobial costs came from primary rather than hospital care.

The non-hospital environment in Brazil does not have a specific surveillance system on the rational use of drugs, including antimicrobials, which limits monitoring and controlling this drug, and favors its empirically exacerbated use. In addition, an irregular and non-directed distribution can lead to AMR and potentiate unnecessary expenses. Thus, the analysis of the distribution and costs related to the use of antimicrobials in primary care becomes pertinent because it characterizes its representativeness in the context explored.

Therefore, the objective of this study was to analyze the distribution and costs of antimicrobials used in primary care in a capital city of the Northeast region of Brazil.
were investigated in this study. The temporal cut-off is based on Ordinance no. 04/2015, dated July 9, 2015, issued by the Municipal Health Department of Teresina-PI, which determines that the minimum filing time of a prescription for control purposes is two years, so according to the estimated period of data collection (January 2017), the period described above was defined.

A form with information about the distribution of antimicrobial drugs was used to collect the data, which contained information on the amount of these drugs distributed per month, by zone, by UBS and by CAPS; the name; and the cost of these distributed products. The form was validated (face-content) by field experts, and tested in a pilot phase.

Data were processed in the software Statistical Package for the Social Sciences (SPSS), version 21.0. Descriptive statistics were calculated for quantitative variables, and frequencies for qualitative variables, as well as the Kruskal-Wallis test to compare the medians of independent data distributions (distributions formed by data from different sources: different units).

The study complied with the principles of Resolution no. 466, of December 12, 2012, and was approved with the report no. 1.806.553. To guarantee the anonymity of the health units evaluated in the study, only their initials were used.

Results

In the period comprised for the research (14 months), 1,651,516 antimicrobials were distributed to primary care units in the capital city. Of these, 1,638,009 belonged to the UBS and 13,507 to the CAPS.

The area of the city that received the most amount of medications was the Eastern/Southeastern. As for CAPS units, CAPS II received the most part. The three antimicrobials most widely distributed in the UBS divided by zones were: Amoxicillin (500mg) in tablets, Metronidazole (250mg), and the combination of Sulfamethoxazole + Trimethoprim (400mg + 80mg) in tablets. Amoxicillin (500 mg) is the antimicrobial that is in evidence in the CAPS, as shown in table 1.

A total of 2,590.71 BRL was spent in the CAPS units of the city, and 98,705.00 BRL with antimicrobials distributed in the UBS units of the three city zones analyzed (Figure 1) (Table 2).

For the following table, the three UBSs that received the greatest amount of antimicrobials were chosen from each zone of the municipality in decreasing order. Based on the Kruskal-Wallis test, the medians of costs in each zone of the municipality were compared. The result showed that there were no statistically significant differences, that is, the costs for each unit (within the same region) in the evaluated period, although high, were almost the same (Table 2).

### Table 1. Amount of antimicrobials distributed to primary care units according to the service demand (n=1,651,516)

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>E/SE</th>
<th>S</th>
<th>C/N</th>
<th>CAPS II</th>
<th>CAPS III</th>
<th>CAPS AD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin 500mg</td>
<td>276,090</td>
<td>308,154</td>
<td>185,703</td>
<td>5,775</td>
<td>945</td>
<td>3,360</td>
<td>780,027</td>
</tr>
<tr>
<td>Amoxicillin suspension</td>
<td>7,990</td>
<td>7,900</td>
<td>5,880</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>21,790</td>
</tr>
<tr>
<td>Metronidazole 250mg tablet</td>
<td>199,280</td>
<td>166,920</td>
<td>162,780</td>
<td>600</td>
<td>260</td>
<td>0</td>
<td>529,840</td>
</tr>
<tr>
<td>Metronidazole 200mg suspension</td>
<td>7,960</td>
<td>6,801</td>
<td>6,950</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21,711</td>
</tr>
<tr>
<td>Metronidazole 100mg cream</td>
<td>7,200</td>
<td>7,119</td>
<td>5,100</td>
<td>0</td>
<td>50</td>
<td>20</td>
<td>19,489</td>
</tr>
<tr>
<td>Sulfamethoxazole + Trimethoprim 40mg tablet</td>
<td>2,316</td>
<td>2,540</td>
<td>1,410</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>6,285</td>
</tr>
<tr>
<td>Sulfamethoxazole 400mg + Trimethoprim 80mg tablet</td>
<td>74,500</td>
<td>55,140</td>
<td>39,600</td>
<td>0</td>
<td>100</td>
<td>800</td>
<td>170,140</td>
</tr>
<tr>
<td>Cephalexin 500mg</td>
<td>29,950</td>
<td>17,680</td>
<td>23,100</td>
<td>400</td>
<td>200</td>
<td>900</td>
<td>72,230</td>
</tr>
<tr>
<td>Cephalexin suspension</td>
<td>853</td>
<td>597</td>
<td>587</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,037</td>
</tr>
<tr>
<td>Benzypenicillin 1.200.000</td>
<td>3,961</td>
<td>3,632</td>
<td>2,602</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>10,245</td>
</tr>
<tr>
<td>Benzypenicillin 600</td>
<td>1,330</td>
<td>679</td>
<td>880</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3,069</td>
</tr>
<tr>
<td>Benzypenicillin 300.000</td>
<td>568</td>
<td>580</td>
<td>213</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,361</td>
</tr>
<tr>
<td>Erythromycin 500mg</td>
<td>3,833</td>
<td>2,330</td>
<td>3,270</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9,433</td>
</tr>
<tr>
<td>Erythromycin 250mg suspension</td>
<td>1,707</td>
<td>985</td>
<td>485</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>3,184</td>
</tr>
<tr>
<td>Gentamicin 5mg</td>
<td>272</td>
<td>217</td>
<td>156</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>655</td>
</tr>
<tr>
<td>Total</td>
<td>617,810</td>
<td>581,493</td>
<td>438,716</td>
<td>6,825</td>
<td>1,592</td>
<td>5,000</td>
<td>1,651,516</td>
</tr>
</tbody>
</table>

Notes: E/SE: East/Southeast; C/N: Center/North; S: South. CAPS: psychosocial care center.
Antimicrobial distribution and costs in primary care

**Discussion**

The distribution of antimicrobials in the primary health care network of the municipality studied is irregularly performed among the health units, and does not follow a specific protocol. It was noticed that it relies on each zone’s demand, without a system of analysis to guide the distribution. This situation involves an exacerbated use of the drug, which burdens the health care system due to the search of broad-spectrum antimicrobials to supply the demand that was not met with the previous drug, as well as the consequences to the patient’s clinical evolution because it increases healing time of infection, and potentiates the need for other levels of health care.

Brazil was ranked by the Intercontinental Marketing Services Health (IMS Health) as one of the nations representing two-thirds of global pharmaceutical growth, with antimicrobials being a wide portion of that percentage, representing one of the most used drugs in the country. This motivated the Brazilian Health Regulatory Agency (ANVISA) to extend the measures for regulation and control related to sales, by demanding prescriptions for this class of drugs, which had been, thus far, sold freely; to require some data in the prescription, such as information about the patient, the issuer, the drug, and the prescription’s date of issue; to insert them in the list of drugs when establishing guidelines regarding the distribution of drugs included in the Brazilian List of Essential Drugs (RENAME).
and in the Municipal List of Drugs (REMUME), among other regulations involving products containing antimicrobials in their composition.\(^8\)

Drugs are still one of the main therapeutic instruments in the health-disease process, reflecting a historically hospital-based and curative care model. Pharmacological treatment of infectious diseases is a valuable ally in healing. However, irrational use and consequent antimicrobial resistance may hinder therapy progression. Therefore, its prescription, distribution, and disposal are necessary activities at all levels of health care, and are part of the set of services and actions called pharmaceutical assistance.\(^9\)

The cycle of pharmaceutical assistance in primary care in Brazil consists of the selection of medicines, programming, acquisition, storage, material management, drug distribution, and disposal, respectively. The distribution stage consists of the supply of drugs to the health units in adequate quantities, with quality and timing. Purchase and distribution are performed through the regular and automatic, fund-to-fund transfer of federal resources, in the form of an added incentive to the Basic Care Price Ceiling.\(^10,11\)

The use of drugs, in general, is influenced by a number of factors, such as demographic structure, morbidity profile, socioeconomic, behavioral and cultural factors, characteristics of the pharmaceutical market, and government policies directed to the sector.\(^12\)

The authors of this study found that the distribution of antimicrobials in the city studied is performed only according to the demand of the health units. Thus, it is possible to state that the areas of activity of the units are related and have repercussions on the profile of drug use, which is influenced by social, population and economic issues. For instance, a study carried out in the same city showed that respiratory infections were the most frequently diagnosed in the UBSs (52.2%), and that their treatment involved empirical antibiotic therapy in 95.5% of the time, with no previous request of antimicrobial culture, and emphasis on the use of amoxicillin (85%).\(^13\) This approach aims at the prevention of more severe complications, such as rheumatic fever and/or periamiglossal abscesses, and has a direct impact on antimicrobial use and distribution.

Studies of UBS pharmacies in three other Brazilian municipalities support the information that amoxicillin is the predominant antimicrobial drug among the most prescribed drugs.\(^13-15\) This profile of high consumption is due to its broad spectrum characteristics, low toxicity, oral administration, good tolerability, and great experience of clinical use favoring its selection in the basic care units.\(^13,16\) Amoxicillin is a beta-lactam antibiotic that has a bactericidal action against gram-positive and gram-negative microorganisms, being indicated for upper airways infections and urinary tract infections, clinical conditions that are prevalent in primary care.\(^17\)

Studies in Ghana and Nigeria also show amoxicillin as the most prescribed drug (26.7%; 18.2% respectively), followed by metronidazole (25.4%; 20.1%). Together, these drugs are considered the main antimicrobial agents used in primary care in these countries.\(^18,19\) Metronidazole is an antimicrobial with bactericidal activity against gram-negative anaerobic bacilli, all anaerobic cocci, and sporulated Gram-positive bacilli. It is recommended in wounds to control the odor caused by anaerobic bacteria,\(^20\) besides the treatment of some protozoal infections (Giardia lamblia, Trichomonas vaginalis), which justifies its high demand in primary care.\(^21\)

In the case of distribution of antimicrobials to the CAPS, this data is scarce in the literature, reinforcing the pioneer character of this study. These centers are health units dedicated to specialized psychosocial health care and often use specific drugs for the treatment of mental disorders. However, the care provided in these establishments demands the integration of mental and physical care, that is, the user needs treatment for the disorder, but should also have his/her other needs met, such as an infection, so that resolute and holistic assistance is provided.\(^22\)

In terms of costs, pharmaceutical costs with antibiotics for primary care are high, a finding that is supported by other studies in Malaysia\(^23\) and in the United States of America.\(^24\) According to data from the Integrated System of General Services
Administration (SIASG), from 2006 to 2013 there was a significant increase in pharmaceutical expenditures by the Brazilian government, with total expenditure tripled (2.72 times), while the amounts purchased only doubled (1.99) during the same period.\(^{25}\) The irrational use related to uncertainty in the diagnosis and the lack of devices to specify the appropriate therapy, as well as the lack of a system of surveillance of community infections in Brazil can be pointed out as factors that collaborate for the irrational use of antimicrobials, and consequently impact on high costs and unnecessary expenses.\(^{26-28}\)

The management of community-based infections in primary care is still empirically conducted, based on the observation of signs and symptoms presented by the patient, rather than on the bacterial culture or antibiogram.\(^{29}\) The lack of Brazilian legislation and regulations aimed at the prevention and control of infection in out-of-hospital environments that may guide clinical practice require adaptations of professionals, which may result in unnecessary interventions and high expenditures to the health system.\(^{30}\)

This study has some limitations. The first regards the fact that it was performed in a single municipality, which makes it difficult to generalize its findings. The use of secondary data that may be imprecise should also be considered. It is worth emphasizing the need for replication of studies of this magnitude in other Brazilian regions in order to consolidate the profile of the distribution of antimicrobials in Brazil and subsidize interventions at the local and national levels for the rational distribution of these drugs.

### Conclusion

The analysis of antimicrobial distribution and costs in primary care of the municipality studied presented an irregular distribution based on the demand presented by each zone of the municipality. The capital city does not have any specific protocol or system to investigate a possible increase or reduction in demand. The costs are proportional to the drug distribution, so if there is no distribution systematization, there is no financial management of expenditures.

### Acknowledgments

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### Collaborations

Lima HKS, Carvalho HEF, Sousa AFL, Moura MEB, Andrade D, and Valle ARMC declare that they contributed with the project design, data analysis, and interpretation, relevant critical review of the intellectual content and approval of the final version to be published.

### References


Health integration across international borders: an integrative review
A integração de saúde entre fronteiras internacionais: uma revisão integrativa
Integración de salud atravesando fronteras internacionales: una revisión integrativa

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Selma Regina de Andrade²
Andriela Backes Ruoff²

Abstract
Objective: Evidence the types and goal of the healthcare integration agreements in international border regions.
Methods: Integrative literature review, in which studies published between 2006 and 2015 were selected that were indexed in the electronic databases CINAHL, CliniC Collection, LILACS, MEDLINE, PubMed, Scopus and SocINDEX. Thirteen studies were included.
Results: The results demonstrate that formal and informal integration agreements exist in border regions, formalized by federal governments or international laws. The prevalent goals of these agreements are monitoring, disease detection and control in border regions.
Conclusion: The agreements studied aim for cooperation to cope with regional difficulties. The integration actions tend to minimize the health asymmetries of border populations.

Keywords
Border areas; Border health; International cooperation; Emigration and immigration; Health management

Descritores
Áreas de fronteira; Saúde na fronteira; Cooperação internacional; Emigração e imigração; Gestão em saúde

Resumo
Objetivo: Evidenciar os tipos e a finalidade dos acordos de integração de atenção à saúde que ocorrem em regiões de fronteiras internacionais.
Métodos: Revisão integrativa de literatura, na qual foram selecionados estudos publicados entre 2006 a 2015, indexados nas bases eletrônicas CINAHL, CliniC Collection, LILACS, MEDLINE, PubMed, Scopus e SocINDEX. Foram incluídos 13 estudos.
Resultados: Demonstram que os acordos de integração em regiões de fronteiras entre países são dos tipos formais e informais, formalizados por governos federais ou legislações internacionais. Como finalidade destes acordos, prevalecem os de monitoramento, detecção e controle de doenças em regiões fronteiriças.
Conclusão: Os acordos estudados objetivam a cooperação para o enfrentamento de dificuldades regionais. As ações de integração tendem a minimizar as assimetrias de saúde das populações fronteiriças.

Descritores
Áreas fronterizas; Salud fronteriza; Cooperación internacional; Emigración e inmigración; Gestión en salud

Resumen
Objetivo: Evidenciar los tipos y finalidad de los acuerdos de integración de atención de salud que existen en zonas de frontera internacionales.
Resultados: Demostraron que los acuerdos de integración en zonas de fronteras entre países responden a los tipos formales e informales, respaldados por gobiernos federales o por la legislación internacional. Como fin de estos acuerdos, prevalecen los de monitoreo, detección y control de enfermedades en regiones fronterizas.
Conclusión: Los acuerdos estudiados apuntan a la cooperación para enfrentar las dificultades regionales. Las acciones de integración tienden a minimizar las asimetrías sanitarias de las poblaciones fronterizas.

Keywords
Border areas; Border health; International cooperation; Emigration and immigration; Health management

Descritores
Áreas de fronteira; Saúde na fronteira; Cooperação internacional; Emigração e imigração; Gestão em saúde

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Métodos: Revisão integrativa de literatura, na qual foram selecionados estudos publicados entre 2006 a 2015, indexados nas bases eletrônicas CINAHL, CliniC Collection, LILACS, MEDLINE, PubMed, Scopus e SocINDEX. Foram incluídos 13 estudos.
Resultados: Demonstram que os acordos de integração em regiões de fronteiras entre países são dos tipos formais e informais, formalizados por governos federais ou legislações internacionais. Como finalidade destes acordos, prevalecem os de monitoramento, detecção e controle de doenças em regiões fronteiriças.
Conclusão: Os acordos estudados objetivam a cooperação para o enfrentamento de dificuldades regionais. As ações de integração tendem a minimizar as assimetrias de saúde das populações fronteiriças.

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Introduction

The integration of health between countries is a recurring theme, discussed by border region managers, whose manifestations on cross-border health situations take positive and negative forms.\(^{(1)}\)

Most of the border regions are distant from the large urban centers, a fact that can negatively affect the health conditions of the population living there. The formulation of integration policies in these scenarios can minimize the economic and social impacts of these regions.\(^{(1)}\)

Integration processes between countries, including those accomplished in border regions, are motivated by economic and geopolitical issues regulated by the World Trade Organization.\(^{(2)}\) The created policies result in the abolition of legal and institutional tariff barriers that facilitate the access to shared institutions and rules for the consumption of social services between countries.\(^{(3)}\)

International health integrations turned into a social financing power as from the 1990s, when the financial capacity of development banks led to the creation of a new design of government policy decisions, which gradually established itself as the dominant technique.\(^{(4)}\) In this context, integration has played a key role in achieving the global health objectives, reflecting its importance for trade, population mobility, public finances and other international issues.\(^{(5)}\)

International cooperation, and its effects in health, have been instrumental in achieving the goals globally agreed upon, which reinforces the relevance of recognizing the types and purpose of health care integration agreements in border areas. In addition, the common interests of the states facilitate the consolidation of regional integration spaces, in which joint actions ensure projects to guarantee the right to health,\(^{(6)}\) especially the right of access to services.\(^{(7)}\) Considering the geopolitical dimensions of the Brazilian state, member of the Mercosur and a signatory of the United Nations, with an extensive territorial interface with other countries; and its model of comprehensive care and universal access to health, this study aimed to highlight the types and purpose of the health care integration agreements that occur in international border regions.

Methods

Integrative literature review, whose method permits the systematization of empirical and theoretical knowledge about a topic of interest, as well as to synthesize different perspectives on a phenomenon.\(^{(6)}\) The study was designed through the recommendations of the Statement for Reporting Systematic Reviews and Meta-Analyses of Studies (PRISMA) checklist and the elaboration of a protocol, validated by an expert reviewer, consisting of five sequential steps: problem identification, data collection, data evaluation, analysis and interpretation, and presentation of results.\(^{(8,9)}\)

In the first stage, the problem was identified and the review question was defined: What are the types and purpose of the healthcare integration actions that take place in international borders regions?

For the data collection, the filters included the Portuguese, English and Spanish languages, in the time frame from 2006 to 2015, which considered, as a milestone, the implementation of the Integrated Border Health System in Brazil in 2005. This system aimed to promote the integration of health actions and services in border regions of Brazil.\(^{(10)}\)

Original articles fully available online were included. Experience reports, reflections, literature reviews, editorial management reports, letters, opinion articles, comments, congress abstracts, essays, repeated articles, dossiers, official documents, theses, dissertations, books and articles that did not meet the scope of this review were excluded.

In the literature review, electronic bibliographic databases were consulted in June and July 2016: CINAHL, Clinics Collection, LILACS, MEDLINE, PubMed, Scopus and SocINDEX. To compose the search strategy, we used the Boolean operators “OR” and “AND” and keywords and descriptors combined with their respective terms in English and Spanish: Health management, Systems integration, Health Care, Border Health, Border
Health and Border. Based on this strategy, 742 articles were identified, 125 of which were excluded due to repetition, totaling 617 studies.

In the third stage, the 617 studies were pre-selected by reading the title, abstract, keywords or descriptors, excluding those that did not meet the inclusion criteria, so that 106 studies remained. These were read in full, excluding articles that did not meet the scope. In this review, 13 studies were considered.

The selected studies were categorized in a table in Microsoft Excel®, which included the following items: article and journal title; year and language of the publication; authors (name, degree and institution); method, research question and objective; research scenario (border countries, states and cities); existence of health integration actions between the countries studies; and existence of integration between border countries. The search and selection method of the studies is displayed in figure 1.

Figure 1. Flowchart of search and selection of studies on healthcare integration agreements in international border regions, adapted from PRISMA
In the fourth stage, the data were analyzed and interpreted and, in the fifth phase of the review, the research report was elaborated.

Results

The 13 articles analyzed revealed that health actions exist that provided for integration among countries, which took form in the model of international agreements. The data on the governmental policies for the integration of healthcare in international border regions permitted their organization in themes that address the scenarios of health integration agreements, particularly European countries, Asian and South American countries. In these scenarios, the types and goals of the integration agreements could be identified.

In the analysis, ten articles were published in English, two in Portuguese and one in Spanish, between 2007 and 2015. In the scope under analysis, no studies were published in 2006, 2008, 2009 and 2010. The research methods employed were case studies with qualitative approaches or simply described as qualitative. Four studies used quantitative methods and two followed the mixed method. A synthesis of the themes addressed is displayed in chart 1.

The integration agreements between European countries have taken place across borders strengthened by the EU treaty and legitimized by European Parliament directives, guaranteeing rights to cross-border health care. In Asia, agreements are closed across borders close to regions of conflict involving political or religious conflicts. In South America, differences between health systems in countries make it difficult to close agreements. Due to disparities in access to health for border populations, existing agreements are local cooperation initiatives to deal with regional difficulties.

Health integration agreements are formal and informal. The formal ones are legitimized by federal governments or supported by international legislations. Informal agreements, on the other hand, can be closed between non-governmental organizations, for example, Middle East Association for Managing Hearing Loss or between subnational governments, such as the Charter of Posadas between the State of Santa Catarina in Brazil and the Province of Misiones in Argentina.

There are also agreements that cooperation takes place on the basis of informal requests between local health authorities or through exchange of favors among health professionals in the countries concerned.

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**Chart 1. Synthesis of types and goals of the healthcare integration agreements according to the international border scenarios**

<table>
<thead>
<tr>
<th>Authors/year</th>
<th>Type</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosenkötter N, Clemens T, Sørensen K, Brand H. 2013</td>
<td>Formal</td>
<td>Facilitate patient mobility between countries of the European Union</td>
</tr>
<tr>
<td>Van der Molen I, Commers M. 2013</td>
<td>Formal</td>
<td>Respond to emergency situations in border regions</td>
</tr>
<tr>
<td>Gines I, Baeten R. 2015</td>
<td>Formal</td>
<td>Medium and high-complexity care at one side of the border</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skinner A, Snihar A. 2007</td>
<td>Informal</td>
<td>Screening and treatment of congenital impairment in infants</td>
</tr>
<tr>
<td>Moore M, Dausey D.J. 2015</td>
<td>Formal</td>
<td>Continuous monitoring of infectious-contagious diseases</td>
</tr>
<tr>
<td><strong>South America</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cafagna G, Missoni E, Beimgolesa R. 2014</td>
<td>Formal</td>
<td>Promote equity in care for border populations</td>
</tr>
<tr>
<td>Giovanella L, Guimarães L, Nogueira V, Lobato LC, Damaceno G. 2003</td>
<td>Informal</td>
<td>Continuous monitoring of infectious-contagious diseases</td>
</tr>
<tr>
<td>Nogueira V, Dal Prí K, Fernian S. 2007</td>
<td>Informal</td>
<td>Training of health professionals working in border regions</td>
</tr>
<tr>
<td>Quirós HM, González R, Vergaro J. 2011</td>
<td>Informal</td>
<td>Continuous monitoring of infectious-contagious diseases</td>
</tr>
</tbody>
</table>
Most health integration agreements aim to monitor, detect and control diseases of epidemiological importance for border regions.

The agreements between European Union countries aim to facilitate patient mobility, mainly in emergency situations and hospital care of medium and high complexity at the borders of member countries.

Other agreements seek to promote equity in the care for border populations, train health professionals working in border regions and treat newborns with congenital disabilities.

**Discussion**

This literature review contributes to the recognition and understanding of the types of actions and their goals for health integration agreements across international borders, and can help managers in decision making, planning and implementation of public health policies in favor of the border populations. This review is limited by the non-inclusion of other review studies, experience reports and official documents that discuss this subject, in accordance with a previously approved protocol.

Border regions can be complex, as frontier cities naturally integrate culturally, socially and economically. They create a kind of third space, forming a new society, with its own culture and values, which grants them an identity different from the remaining contingent of the countries they belong to.

In the health area, the international agreements in these regions tend to guarantee the right to health of the local population as, in addition to their own characteristics, the borders are distant from the political and governmental centers of their countries, in mountainous or geographically isolated regions and generally with limited health infrastructure.

In this condition, the health resources result from their own country’s complementary system or from services across the border because, when ill, people choose the paths that are most meaningful to them, based on the possibilities they envisage.

The demand for health care in neighboring countries may also be related to the differences between national health systems, which is the main factor for the success of integration agreements in international border regions. Due to the unique characteristics of national systems, there are operational difficulties in integration processes, making border health management more complex.

For the success of health integration agreements between governments of the border countries, managers and health professionals need to understand foreigners’ rights to health. The results of a study carried out on the borders between Brazil, Argentina, Paraguay and Uruguay showed that these issues reveal the lack of common ethical and political principles and the institutional fragility of existing agreements.

When they occur, such agreements offer benefits to the populations living in those regions. Contextual factors exert a strong influence on their implementation and maintenance though. Even when agreements are carried out in conflicting or isolated border regions, their success depends more on the sensitivity and performance of the stakeholders in the process than on the policies that created them. An example of this can be observed in the results of the hearing loss project in Arab and Israeli infants.

**Conclusion**

Health integration agreements in border regions are a possible initiative and can effectively minimize the existing asymmetries between urban centers and these regions. The results of this review have shown that the existing agreements are formal and informal in nature and aim to co-operate to address regional difficulties due to disparities in the access to health for border populations. Health integration agreements gain consistency when their foundation is based on analyses about which management strategies are necessary for a specific reality. These strategies relate to infrastructure and government policies, as well as to the engagement of actors in the integration process, including the populations in the region.
References


Social network analysis in primary health care: an integrative review

Análisis de redes sociales en la atención primaria en salud: revisión integrativa

Análise de redes sociais na atenção primária em saúde: revisão integrativa

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Magda Guimarães de Araújo Faria
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Tarciso Feijó da Silva
Valentina Souza
Rebecca dos Santos Dias

Abstract

Objetivo: Social networks are considered as the relationships that connect people, groups or institutions and influence the access to health services. Social Network Analysis is a quantitative method, used in social relationship studies in different areas, including health. It has recently been incorporated in Collective Health and Nursing. The objective was to know how the social network analysis method has been applied in studies undertaken in Primary Health Care.

Métodos: The integrative literature review method was used, including the following phases: definition of search criterion, selection of articles and analysis according to the defined temporal and geographical distribution categories, selected types of networks and actors and main outcomes.

Resultados: The results indicate that the publications tend to concentrate in the past five years and that the method is more used in English-speaking countries. All studies used other methodological approaches together with Social Network Analysis. In the professional networks, the interinstitutional and interpersonal relationships stand out, reaffirming the ordering role of primary health care in the care network. With users, the social network analysis highlighted the relevance of the primary networks and support organizations.

Conclusion: In conclusion, the social network analysis can evidence relational structures and flows in Primary Health Care, which are of interest for collective health and nursing studies.

Resumen

Objetivo: Se entiende por redes sociales a las relaciones que conectan personas, grupos o instituciones, y ejercen influencia en el acceso a los servicios de salud. Análisis de redes sociales es un método cuantitativo, usado en estudios sobre relaciones sociales de diversas áreas, incluyendo la salud, siendo de incorporación reciente en Salud Colectiva y Enfermería. El objetivo fue conocer cómo se ha aplicado la metodología de análisis de redes sociales en estudios cuyo ámbito es la atención primaria en salud.

Métodos: Se realizó revisión interactiva de literatura, y se cumplieron sus dos etapas de definición de criterio de búsqueda, selección de artículos y análisis según las categorías definidas de distribución temporal y geográfica, tipos de redes y actores seleccionados y principales resultados.

Resultados: Los resultados indican que las publicaciones tienden a concentrarse en los últimos cinco años, y que la metodología es más utilizada en países de habla inglesa. Todos los estudios usaron otras abordajes metodológicos junto con análisis de redes sociales. Las redes de profesionales destacaron como estrategia de análisis de la red de profesionales, y a análisis de redes sociales como estrategia de análisis de la red social de usuarios.

Conclusión: En conclusión, el análisis de redes sociales tiene potencialidad para evidenciar estructuras y flujos relacionales en Atención Primaria de Salud, siendo de interés para estudios en salud colectiva y de enfermería.

Keywords

Social networking; Primary health care; Methodology

Descriptors

Redes sociales; Atenção primária à saúde; Metodología

Abstract

Objetivo: Metodología

Descritores

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Resultados: Os resultados indicam que as publicações tendem a se concentrar nos últimos cinco anos, e a metodologia é mais utilizada em países de língua inglesa. Todos os estudos usaram outras abordagens metodológicas juntamente com a análise de redes sociais. Nas redes de profissionais, destacam-se as relações interinstitucionais e interpessoais, reafirmando a importância primária à saúde como ordenadora da rede de cuidados. Com usuários, a análise de redes sociais destacou a relevância das redes primárias e das organizações de apoio.

Conclusão: Conclui-se que a análise de redes sociais possui potencialidade para evidenciar estruturas e flui dos relacionais na Atenção Primária à Saúde, com interesse para estudos em saúde coletiva e enfermagem.
**Introduction**

Social networks are considered as the relationships that connect and link different people, groups or institutions, with greater or lesser cohesion, interactivity, sustainability, duration, among other attributes. In the social sciences, the individuals who belong to this system are recognized as social subjects or actors. The articulation among subjects through the digital social media, such as Facebook or Twitter, have also been widely called social networks, which lies beyond the object of this study.\(^1\)

The networks are of some influence in the access to health services. What the social support networks are concerned, mainly the primary networks (referring to the closest relationship circle), these influence the use and choice of services, professional or practices and can act to motivate the individual or not to turn to the health services and express their demands, besides granting material and emotional support and providing information on service functioning.\(^2\)

A distinction is due between the qualitative study that depart from the social network concept (such as research on the social support networks), in which the use of the term can be metaphorical, and Social Network Analysis (SNA) as a structured method, which is the focus of this study.\(^3\)

SNA is a quantitative method that primarily aims to map and study the relationships and positions of actors in the networks, considering them as relationship structures. It is accepted that structural SNA establishes analysis levels concerning the relations among individual actors and their positions and interactions in the network as a whole, permitting comparisons with other similar networks. SNA-based studies gained momentum in the 1970’s, although they started many decades before that.\(^4\)

An important classification in SNA refers to the starting point for network mapping. It can depart from an individual (ego or egocentric networks), successively interviewing, in a snowball process, the other actors or knots the initial actor interacts with. The size of the network is decided on in function of the study objectives and resources. They can include all links within a certain institution, place or territory (total or integral networks), or also map the interactions among individual subjects together with institutions/sectors, in this case called two-way networks.\(^4\)

The development of SNA was mediated by the interest in discovering the relations among actors through inferential statistics among the variables, based on mathematical modeling for analyses that can be more or less detailed, besides the graphical display of networks, which has been important because it grants a rapid and objective view of the relationship structures. Computer software has been used as important support in SNA, the most used programs being UCINET \(^\copyright\), Pajek \(^\copyright\), GEPHI \(^\copyright\), Egonet\(^\copyright\).\(^5\)

These computer programs come with graphic representation extensions that permit picturing the network image in the form of a sociogram, as well as statistical modeling. This modeling is not necessarily the main core of analysis. UCINET \(^\copyright\), like other software, offers resources for descriptive and visual methods that permit verifying network cohesion and density, and produces analyses of each actor’s centrality and intermediation, among other descriptive categories. The mathematical base of the method, however, does not exclude the possibility of articulating its use with qualitative approaches, such as studies developed in Information Science and, more recently, in nursing.\(^1,6-9\)

In health, studies can be found that are based on the social network concept, as well as studies based on SNA, departing from different frameworks – medical and social anthropology, sociology, organizational studies, among others. In Brazilian Collective Health and Nursing, its incorporation is recent.\(^1,3\)

In view of the need to expand the knowledge on the research methods that permit the analysis of social practices from a perspective that considers the complexity of the health-disease-care phenomena, SNA is a method that can cooperate to express the relationships, exchanges, reciprocities, interests and the importance of the social actors in the institutional and non-institutional health care contexts, including Primary Health Care (PHC). It is also of
interest to nursing due to the nurse’s important mediating role at this care level.\(^{(1-8)}\)

The objective in this review was to know how the Social Network Analysis has been applied in studies inserted in or related to actors who Interact in Primary Health Care, whether users, health professional or sectors/services.

### Methods

This is an integrative review of the literature, which permits synthesizing the knowledge on a given subject by unifying the results obtained in other studies or diverse research.

Considering the six phases or steps for its construction, in the first, the guiding question of the research was elaborated, on how SNA has been used in studies based on PHC.\(^{(10-11)}\)

The second stage consisted in structuring the literature search, through a survey of the scientific publications in the Virtual Health Library (VHL), comprising scientific articles available in the following databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Online Medical Research and Analysis System (MEDLINE), Specialized bibliographical database in Nursing (BDENF) and Scientific Electronic Library Online (SciELO).

For the search of the articles, the key terms “social network analysis” and “primary health care” were used. As inclusion criteria, we considered: original articles, deriving from field research using SNA; full text available in the databases, in Portuguese, English and Spanish, and published between 2005 and 2016. Initially, the publications were selected by reading the titles, followed by the reading of the abstracts and later the full texts.

Initially, 20 scientific productions were found, only 15 (fifteen) of which considered the inclusion criteria, as can be observed in the search flow diagram shown in figure 1.

Three publications were excluded because they did not address issues pertinent to the research object, mainly because they are not applicable in the PHC scenario, restricting their discussions to theoretical rather than empirical perspectives.

In the third phase, a data collection instrument was used to register the relevant information on the selected studies, which permitted surveying the fol-
lowing categories for analysis: title of the articles and name of the authors, year, country and language of publication, objective(s), type of network analyzed and actors involved, and main outcomes.

In the next phase, the collected data were analyzed based on the identification, convergences and divergences related to the following characteristics of the studies, which permitted the identification of two thematic categories entitled “SNA as an analysis strategy for PHC professionals’ network” and “SNA as an analysis strategy of users’ social network”, with a view to permitting the discussion of the results based on the interpretation and comparison with the theoretical framework.

Results and Discussion

Chart 1 summarizes the main elements in the articles selected for the development of this study, followed by a brief descriptive characterization of the selected publications.

About the publication period, the years 2013 and 2015 stood out because they concentrated half of the sample studied. As for the countries of publication, the majority is English-speaking: the United States and Canada (n = 10), followed by Australia (n = 2), Pakistan and Brazil (with 1 article each). A larger volume of studies conducted in North America was already expected, as SNA software has been developed and widely used in the United States of America.

SNA is hardly used as a method in the health sector in Brazil, as expressed in the only publication in the country. In a simple search in academic databases, areas such as administration, sociology and economics have published studies using SNA in Brazil. Publications on the use of SNA in Brazil seem to focus on some authors in the field of Information Science. This field has gained an important role in the diffusion and use of the SNA method, as well as to bring SNA closer to the other fields of knowledge, including the field of health.

All articles used SNA as a method, combined or not with other approaches, mostly qualitative, and 86% indicated UCINET© as the program of choice for data analysis.

In SNA, both individuals and institutions can be considered as actors. In this sense, it was observed that the great majority of the publications used SNA as a method to interpret existing social relationships among health professionals working in PHC, with emphasis on doctors and nurses. Of the four articles that explored network relationships involving users or communities, only two mapped these networks, through individual interviews and egocentric SNA. Two others analyzed integral networks.

The range of objectives in the use of SNA in PHC is highlighted, aiming to evidence interactions and the influence of the relations among users and between users and teams, and within the teams, to support the care and management processes, thus producing two main categories, according to the subjects analyzed in the networks - professionals or users.

SNA as a strategy to analyze the network of PHC professionals

The network measure, among the articles analyzed, was used to calculate density and centralization variables in the context of the interaction in the multiprofessional primary care team; to describe the network of discussions involving women’s health in primary care and to examine the factors that determine the physicians’ position in that network; and to analyze the same network of professionals, mediated by managers, in different periods, concluding that despite the changes in the structure and composition, the central role of management actors was maintained, which granted the actors a certain independence from management in relation to the care network.

Networking of professional interactions was applied as a way to qualify the management of elderly care teams in South Australia. The network was analyzed as a management device, which helps to evidence tensions, conflicts and critical knots.

The relations established in the PHC work processes highlight the role of nurses as a central actor in health service organization, in social network articulation and concerning their influence in decision making, despite not necessarily being the
Chart 1. Synthesis of data collection

<table>
<thead>
<tr>
<th>Title, authors, language, year and country</th>
<th>Objectives and network types</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social network analysis as an analytic tool for interaction patterns in primary care practices (Scott J et al). English, 2005, USA.</td>
<td>Describe how SNA can be used to characterize and compare communication patterns in professional practices in PHC. Two total networks.</td>
<td>The use of SNA to investigate social networks in PHC offers potentials and limits. SNA is considered a good tool to study complex systems represented by practices within PHC.</td>
</tr>
<tr>
<td>Factors affecting influential discussions among physicians: a social network analysis of a primary care practice (Keating N et al). English, 2007, USA.</td>
<td>Assess the network of influential discussions among PHC physicians working in a teaching hospital on the theme woman’s health. One total network.</td>
<td>Informal interactions among colleagues that influence decisions are frequent. Related factors are: clinical experience with women; convenience in time and space; colleagues of the same sex.</td>
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<tr>
<td>Mutual understanding in multi-disciplinary primary health care teams. (Quinlan E, Robertson S). English, 2010, Canada.</td>
<td>Analyze relationships of communication and understanding in shared decision making in PHC teams according to professional categories. Egocentric networks with nurses.</td>
<td>In the 4 teams, the decisions involved other professional than nurses and physicians; factors like team cohesion on PHC objectives affect mutual decision capacity; Interaction flow in the network increases with mutual communication and vice-versa.</td>
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<tr>
<td>Social networks and physician adoption of electronic health records: insights from an empirical study. (Zheng K et al). English, 2010, USA.</td>
<td>Study how social interactions influence physicians’ adoption of an electronic chart system. Egocentric networks with physicians, according to questions on different interactions (professional, personal and influence).</td>
<td>The professional network shows interactions between residents and other physicians, the personal networks express more interactions between physicians in the same professional categories, and some actors showing higher degree centrality, and the influence network tend to decide on using the charts significantly smaller and dispersed, evidencing that few colleagues influence the decision.</td>
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<tr>
<td>Variation in patient-sharing networks of physicians across the United States. (Landon BE et al). English, 2010, USA.</td>
<td>Identify professional networks among physicians, based on shared patients, examining how these networks vary across geographic regions and determine factors associated with interactions among physicians. Egocentric networks using health system records based on the patient.</td>
<td>Important geographical variations were found in the identified networks, but the study is inconclusive on their factors. There is a trend towards some shared identity among physicians in the same network. Complex factors seem to relate to the formation of physician networks.</td>
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<tr>
<td>Primary health care teams and the patient perspective: a social network analysis. (Cheong LHM et al). English, 2013, Australia.</td>
<td>Describe the health networks of PHC patients, comparing different care groups, gain an understanding about the nature and extent of their interactions and identify pharmacists’ role in the patient networks. Egocentric networks with asthma patients.</td>
<td>The patient networks were classified under community groups, clinical groups and mixed networks, without mutual interaction. The interaction with pharmacists in the network was considered minimal.</td>
</tr>
<tr>
<td>Knowledge flow and exchange in interdisciplinary primary health care teams (PHCTs): an exploratory study. (Shannon L et al). English, 2013, Canada.</td>
<td>Explore how clinical research knowledge flows through multidisciplinary PHC teams and influences the clinical decisions. Total networks with 6 PHC teams.</td>
<td>Obtaining research knowledge was seen as a shared responsibility among the team members, while its application in patient care was considered the responsibility of the team leader, generally the senior physician. The team members recognized the need for information access, synthesis, interpretation or management resources.</td>
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<tr>
<td>Brokering for the primary healthcare needs of recent immigrant families in Atlantic, Canada. (Isaacs S et al). English, 2013, Canada.</td>
<td>Analyze how organizations that act as brokers supported a network of PHC services to respond to the needs of recent immigrant families with small children. Total network with organizations.</td>
<td>The institutions that act as brokers/mediators are fundamental for the migrants to access the service network. The main institutions were: migration central, child legal support sector and public health sector.</td>
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<tr>
<td>Competence trust among providers as fundamental to a culturally competent primary healthcare system for immigrant families. (Isaacs S et al). English, 2013, Canada.</td>
<td>Explore how an organization’s trust in the cultural competence of other service providers (competence trust) can influence the efficacy of a service network to attend to the needs of recent immigrant families. Integral network with 27 organizations.</td>
<td>Nongovernmental organizations were identified among the most culturally competent. Systemic cultural competence building in a service network is necessary to improve collaborations and service access for immigrant families.</td>
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<tr>
<td>The communicative power of nurse practitioners in multidisciplinary primary healthcare teams. (Quinlan E, Robertson S). English, 2013, Canada.</td>
<td>Explore the role of nursing practitioners in facilitating knowledge exchange in multidisciplinary PHC teams. Egocentric networks with nurses.</td>
<td>The conclusions of the study refer to the knowledge exchange behavior structure and particularly to the role of the NP and the knowledge boundary spanner.</td>
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<tr>
<td>Advancing the application of systems thinking in health: advice seeking behavior among primary health care physicians in Pakistan. (Asmat U et al). English, 2014, Pakistan.</td>
<td>This study analyzes the extent to which the existing PHC system in Pakistan facilitates physicians’ access to information sharing, focusing on cases of measles and tuberculosis. Egocentric networks with physicians.</td>
<td>The PHC physicians developed their own strategies to overcome communication restrictions. The search for council and information depended on the existence of informal social interaction with senior specialists.</td>
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<tr>
<td>Fortalezas, Oportunidades, Fraquezas e Ameaças (Matrix POF) de uma Comunidade Ribeirinha Sul-Amazonica na perspectiva da Análise de Redes Sociais: aportes para a Atenção Básica à Saúde. Gomide et al. Portuguese, 2015, Brazil.</td>
<td>Understand information transmission processes in a community on the banks of the Madeira river (SOSA) to support the Basic Health Care strategies. Egocentric networks with leaderships.</td>
<td>The results were articulated with the categories proposed by the SWOT matrix (strengths, weaknesses, opportunities, threats). The categories evidenced strong and weak aspects in the network, particularly the leader’s role.</td>
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<tr>
<td>Effects of primary care team social networks on quality of care and costs for patients with cardiovascular disease (Marlon P et al). English, 2015, USA.</td>
<td>Assess the associations among communication, interaction and coordination of the PHC team using SNA, associating care quality and costs for cardiovascular patients. Integral networks with 6 PHC teams.</td>
<td>Teams with dense interactions among all team members were associated with less days of hospitalization and lower costs. Teams with interactions around some core individuals were associated with more days of hospitalization.</td>
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<tr>
<td>Testing a model of facilitated reflection on network feedback: a mixed method study on integration of rural mental health services for older people. (Fulier J et al). English, 2015, Australia.</td>
<td>Test a network reflection management model as a means to engage the services in problem solving on primary mental health care for elderly people. Organizational integral management and service network.</td>
<td>For the sake of effective facilitation of group reflection and exchanges in the network, a network management needs to be neutral, not obstructive, and with credibility in health and social services, with leadership to build confidence through facilitation and mediation.</td>
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institutional leader of the team. In addition, the pertinent role of nurses at two specific moments is observed, being: management and performance in health teams. One of the studies concerns the role of nurses within PHC health teams in a Canadian province, from a network perspective, highlighting their mediating role between actors and knowledge. The use of the term “knowledge boundary spanner” connotes the idea of an actor or device capable of expanding or mediating, in an expansive way, knowledge and relationships within institutions and outwardly, with the ability to cross or break limits. It suggests an approximation to the concept of “weak link”, specific to SNA studies, to identify the actor in the network that occupies the outermost position with regard to the possibility of expansion and communication with other subjects and networks. It can be considered that the adjective “weak” does not express the effective role of this link in the networks, as these are precisely the links that permit the expansion and renewal of a network. Recent studies based on SNA developed in Brazil have presented results similar to the role of the nurse and the community health agent (CHA), and the nurse has emerged as an important mediator for network cohesion, and the CHA for its expansion.

Particularities were also observed with regard to social networks composed of PHC physicians. With regard to the construction of networks for the exchange of professional information and knowledge, it was noticed that medical professionals tend to seek peers of the same sex for the construction of their networks. In addition, the subjects’ social and geographical proximity was identified as a determinant in the therapeutic choice and decision-making process. Relationships among team members influence the problem-solving ability of health practices. It was observed that, the higher the density of the relationships between the members of the PHC teams, the lesser the number of days of hospitalization of the users they attend.

These findings point to the importance of interprofessional relationships, within the same category and with others, as well as to the relevance of PHC to order and serve as a gateway to the care network, as the way in which networks are configured and how actors perform their activities in these networks can affect other care levels.

SNA as an analysis strategy of users’ social network
The social networks of users in the articles analyzed highlight the participation of PHC professionals, family members and non-health organizations. One of the articles uses SNA to map the networks of individuals with asthma, based on which other networks were mapped, which included health professionals from various treatment categories, family and friends, as well as other sources of resources such as educational materials and internet access. The study was developed in Sydney, Australia. Although the work in PHC predicts the provision of multiprofessional and multidisciplinary care, it has been observed that users tend to establish denser connections with relatives and friends, who often lack health knowledge.

Another study carried out in Australia, but in a territory in the South, aimed to use SNA as a management device, capable of inducing reflections in the organizations involved in care for the elderly, regarding their role and that of the other institutional actors in the care network for this group. The article criticizes the fact that there are groups of actors acting in an integrated way, in a network, but that the total group of institutions does not have sufficient interaction. On the other hand, the reflection provoked by the return and discussion of the data enhanced the actors’ understanding about the network performance.

In a study developed in Canada, the interest was to study the networks of governmental and non-governmental organizations that support immigrant communities, assuming that the capacity to generate perceived trust is a cultural competence that affects the quality of relations between organizations and immigrant families. A list of 31 organizations involved with immigrants was provided to each of these organizations, asking them to respond concerning the relationships established with each, and to assess their cultural competence.
towards the immigrants’ needs. This study aimed to evaluate the organizational network, mapping the total network and interviewing key informants of each. The conclusions indicate that the greater or lesser cultural competence of an organization is capable of affecting network relationships, enhancing or making it difficult for immigrant families to access their needs.\(^{21}\)

The only Brazilian article identified refers to a study involving community leaders from the riverside region in the South of the Amazon region. The primary care level is considered as a background for the analysis, as the study is focused on a perspective that aims to map the interactions and exchanges of information in these communities. The analysis proposes categorizations that consider the theoretical sociological contribution of Michel Grossetti about the network relations and autonomy of the subjects, and discusses the role of leadership and its centrality in the networks of groups with specific sociodemographic characteristics, such as riverine communities.\(^{24}\) Implications for PHC, based on the Brazilian Basic Care proposal, are discussed against the background of the theory of social determination of health, and the historicity of social processes, which has brought about changes in structures and forms of relationship in traditional communities.

### Conclusion

The set of publications originates in several studies that converge to the analysis of the relational forms among actors, institutions and/or organizations, with a view to access and quality of care in PHC. Studies that were based on mixed methods have brought interesting contributions about how relationships and interactions occur, collaborating to broaden the knowledge about historical, cultural, political and organizational determinations about network configurations and dynamics. For the area of Collective Health, considering the concept that health is not restricted to the absence of illness, the studies based on SNA are presented as a methodological possibility that can evidence interpersonal and institutional relational structures, and their influences on health-disease-care processes. It should be kept in mind that the studies based on SNA have an important limit, which refers to the size of the network studied, as not all interactions at stake can be included; as well as the cross-sectional cut. It is also argued that a theoretical and conceptual framework is needed to give greater density to the analysis of network structures and interactions, considering that the method is not explanatory by itself. For nursing, as a professional category whose performance is relevant in the context of PHC, SNA can be a methodology for studying teamwork processes and user care, in a relational perspective. In this sense, it can be an element capable of contributing to the effectiveness of the interdisciplinary and mediating vocation of the profession, with a view to greater equity and universal access to health actions.

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### References


