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Globalization of economy and rapid technological change occurring in the world are transforming society. The Brazilian society has big challenges. One of them is reviewing/Changing the service model, which is centered on acute diseases, to a model based on the interaction between different sectors for integration of health services. Therefore, the challenge is political and financial and the goal is to ensure the right to health for all Brazilians.

The Internet of Things (IoT) emerged as a new technological revolution, which will change computing and communication and will shape a new society.

The IoT will make people and objects closer to each other from any devices, including home appliances, hospital equipment, medical records, sensors, mobile phones, and chips, which will be identified, linked to the internet for information exchange and common-interest decisions. This new mode of communication will generate a large amount of data (Big Data), which will be stored and available to people and will bring new business opportunities.

In the health area, we will have applications allowing real-time monitoring of patients’ health status and hospital equipment with chips that send signals from patients to the medical staff. Moreover, we will have efficient and fast access to the internal network (for both professionals in hospitals and teams in field service) in the use of monitoring applications to obtain real-time information, including at critical points in the city where attention is needed.

The IoT has begun and will change our lives. Nothing will be as it was before. In the coming years, we will see things crucial to change the society in the XXI century. The world will reach a new stage of communication, global interaction, and expansion of human knowledge through all the virtual things/devices. Incorporating new healthcare technologies, with priority to solve unexpected difficulties with patients and caring for the elderly, will become the top priorities and challenges of this century.

Profa Dra Mônica Mancini, Cobit, ITIL, ISO 27002, PMP
Professor of the Graduate Program in Technology, Universidade Presbiteriana Mackenzie

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Experiences of illness among individuals with sickle cell anemia and self-care strategies

Experiências do adoecimento de pessoas com anemia falciforme e estratégias de autocuidado

Rosa Candida Cordeiro¹
Silvia Lucia Ferreira¹
Ane Caroline da Cruz Santos¹

Abstract

Objective: To determine the experience of sick individuals with sickle cell anemia and their self-care strategies.

Methods: This was a qualitative study of 17 individuals with sickle cell anemia. Data collection and analysis occurred simultaneously by open codification and categorization, according to steps in the theory based on data. This procedure led to the development of categories related to the experience of individuals who have sickle cell anemia and their self-care.

Results: Experiences of patients who became chronically ill enabled the construction of strategies to better determine the disease, changes in daily life, and the manner in which it affects how patients observe and experience time. Also identified were specific skills for self-care that were developed from lessons learned and mistakes made.

Conclusion: We found that individuals with sickle cell anemia had several favorable approaches for adapting to having become sick during adulthood.

Keywords
Self care; Anemia, sickle cell; Qualitative research; Sick role; Quality of life

Descritores
Autocuidado; Anemia falciforme; Pesquisa qualitativa; Papel do doente; Qualidade de vida

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Conflicts of interest: none reported.
Introduction

The World Health Organization (WHO) recognizes sickle cell anemia as a priority for public health, especially because of problems with access to health services in several regions of the world. In Brazil, this disease is predominantly found among black people, pardos, and Afro-descendants. In general, 3,500 children/year are born with sickle cell anemia, and 1 child in a 1000 births has the disease. The Bahia state, northeast Brazil, has the highest incidence of sickle cell anemia: 1 case for every 650 newborns and 1 individual with sickle cell trait for every 17 births.\(^{(1)}\)

Sickle cell anemia has been treated as a single medical specialization for long time, mainly in hematology, and has not been a part of other health services. Care for sickle cell anemia patients must become a focus of primary care services.

Publication of a self-care manual for individuals with sickle cell anemia revealed the need to share with all health professionals self-care practices, such as meetings among individuals (i.e., a collective construction). These practices can be changed from a disease-centered model to one that prioritizes the daily practices of individuals and families who seek health care.

To understand individuals with sickle cell anemia, experience is important to organize nursing care and obtain broader access to care for this population group. This study aimed to understand the experience of sick individuals with sickle cell anemia and self-care strategies.

Methods

This descriptive study with qualitative analysis used a theory based on data as the methodological reference point. This approach enabled us to develop a theory from the data obtained to perform concomitant and comparative analysis of the data.\(^{(2)}\)

This study was developed in three municipalities of Bahia state. We included 17 patients aged 18 to 49 years old who were diagnosed with sickle cell anemia.

Participation selection was intentional and theoretical. After a search for participants conducted with community health agents, we invited individuals to participate; these initial participants then referred others to participate. We attempted to obtain a varied sample in relation to age, time of diagnosis, formal education and sex.

Data were collected by “deep interviews”.\(^{(3)}\) In the first meeting, we requested participants to reveal their experience with sickle cell anemia. Interviews were transcribed and simultaneously analyzed. This process yielded data that we used to develop a script for further interviews. The findings from the interviews were analyzed and codified according to inductive development of qualitative research, but without losing the characteristics of an open interview.

Interviews occurred at participants’ houses. Participants’ testimonials were digitally recorded and later transcribed in full. As mentioned earlier, data collection and analysis occurred simultaneously through open codification and categorization based on steps of theory grounded in data.\(^{(2)}\) During open codification, data were analyzed line by line, examined, and compared for similarities and differences. Through this process, the phenomena were questioned and explored, which enabled discoveries.

Codified data were grouped by similarities. Each category was considered saturated when it was not possible to add any more new data. This procedure led to the creation of categories for the experiences of sick individuals with sickle cell anemia and self-care.

To maintain rigor in the study, we used the following strategies: all interviews, after transcription, were made available to all participants in order to verify that interviews were represented in a manner consistent with how the data were being analyzed, and we used consolidated criteria for reporting qualitative research (COREQ) as the supporting tool. This tool for qualitative research methods is composed of 32 items that should be verified by the research team for the research project and data analysis.\(^{(4)}\)

Development of this study followed national and international ethical standards for research on human subjects.
Results

According to the referral adopted, the resources that the patients created to manage the process of becoming sick, as well as self-care strategies, were represented by four categories, as shown in figure 1.

The category “building an explanation for the disease” concerns the efforts of patients to better understand sickle cell anemia. This is an important process that involves day-to-day organization, taking care of themselves, and facing the reality of their situation. In collecting the experiences of the participants, we identified the rupture caused by the disease and the need to reclaim balance in order to proceed forward.

The category “observing time and physical signs” shows that being sick results in changes to daily life and affects the way in which each person observes and experiences time.

The category “falling and learning to provide self-care” identifies that steps followed to keep the disease stabilized, such as self-care, are meaningful. In this sense, self-care means a zealous approach to health behavior and the need to be alert to physical signs and symptoms.

Finally, the category “taking care of faith and spirituality” shows that in critical moments, strategies are employed to ensure that the experience of becoming sick as incorporated into the daily routine will be valid. The study participants seek strength...
in facing suffering to help them overcome difficult moments.

**Discussion**

The study is limited because qualitative research does not enable generalization of results. However, our findings can contribute to the knowledge of demands placed on individuals with sickle cell anemia for self-care.

The category “building an explanation for the disease” shows that sickle cell anemia has complex meanings beyond a simply biological dimension. Its social meanings incorporate values and structure of elements related to health professionals, who are always reinterpreting the biomedical model and looking for common-sense knowledge.

When individuals acquire information, they begin to construct an explicative frame that includes biological, behavioral and racial factors and that shows the idea of integrative plurality to explain the presence of the disease. This frame of meaning is built into the interactions with several environments and the individuals who make up their social relationships; these interactions are also changed by these relations and the course of the disease.

Explanations are plentiful and differentiated according to whether they are created as important referral points in the interface of the individual with society. This is equally important in helping to understand several aspects of life, to realign the present, and plan actions for the future. In the studied group, we identified their effort to present a biomedical, legitimated and hegemonic discourse related with health and disease, which necessarily does not implicate, in complete understand of this knowledge.

To pursue an explanation about the disease helps to answer more safely, be more open, and be available to face challenges. Efforts to strengthen patients’ comprehension and learning during daily life can help them build their knowledge of and ability to manage self-care.

We observed that the type of disease determined the patients’ way of life and how they interpret time, defined mainly by crises. To be sick, therefore, is not a constant, but there is a determined period that depends on remission phases and exacerbation of the disease. In this sense, years and months are considered good or poor, based on crises that appear.

In this interaction with time, we also observed a relationship with climate because crises occur more often in cold periods. The winter is seen as threatening the patients’ lives because symptoms and crises become more latent. Individuals with sickle cell anemia, in general during these periods or at night, need to isolate their body as a self-care strategy to protect and avoid the precipitation of crisis.

Following this observation of time, we identified alert signs of how the body responds to being sick (the circumstances that cause and can bring challenges related to indisposition and fatigue). Weakness and indisposition to conduct daily activities are among these signs.

The chronicity of a disease is characterized by uncertainty regarding the future. Although individuals have periods of stability, they need to be alert and take self-care measures, such as adopting changes in their eating habits. Some patients experience tiredness, weakness, and pain every day, and others have moments in which these signs are present and times of “normality”.

Signs of an impending crisis vary from person to person, but they are all aspects and changes perceived in the body. Dehydration signs indicate that the body needs water. Some reports indicate that crises can begin spontaneously, with little warning. Thus, the patient wages a daily battle to maintain daily life activities with continuous care, and sometimes there is a need to intervene so that the body remains strong.

We found that men reported using vitamins and seeking ways to strengthen the body and avoid fatigue; women tried to control their emotions because those also trigger crisis (generally with regard to physical aspects and stressful situations at home). It is possible to identify how difficult it is for men to say that they are sick by their immediate correction of the term “more or less sick” because they do not feel totally incapable of conducting daily activities.
Because patients cannot control when crises will appear, they are aware of the need for daily control to avoid future complications. In this sense, they live with a disease that can be controlled by self-care and cannot neglect themselves.

Building norms for self-care consists of a series of norms that are instituted. The evolution of chronic condition is marked by a routine of time, food that can be ingested or not ingested, medicines that can be taken, exams to be conducted periodically, and control of hemoglobin. There are rules to take care of the body, protect from the sun and cold, and eat a healthy diet. Sometimes slippage occurs because of a hurried life or the difficulty young people have in taking care of themselves.\(^{(5)}\)

To visit the doctor consistently is also important for care, such as the performance of exams. Regular follow-up with specialists is necessary. The aggregated knowledge gathered by observing the recurrence of fundamental experiences helps construct the meaning of care and create rules for facing daily life with a chronic disease. Elements of care must provide support and help patients pursue their daily life activities. The meaning of care is developed by incorporating knowledge of different origins and orders that are molded by physical experience.

Self-care strategies that are developed with experience are based on daily practice and allow patients to keep their lives as close to normal as possible. Strategies for facing chronic illness often transcend mere bodily care—it is also necessary to attend to faith and spirituality.

To accept the restrictions, health implications, and life changes that accompany sickle cell anemia is difficult, and to do so when supported only by fundamental materials is not enough. Religiosity/spirituality is a predictive factor for well-being and social support. Seeking support from religious practice is one of the ways patients face health problems. In our study, religiosity and spirituality appeared as elements of care directed to health and the experience of illness. Going to church, praying or listening to religious music seem to be strategies that help the individual to feel healthier and, sometimes, improve pain, in addition of providing a space of refuge and social support.\(^{(8,9)}\)

To believe that life is guided by a superior force can help patients find meaning in life with a chronic disease. According to this view, physicians cannot always provide healing; healing is present in hope and depends on the divine will. To believe in healing is also a form of obtaining relief, perhaps even interpreted as a miracle and not associated with associated with medical knowledge and becoming possible, because it is transferred for divine field: faith in God \(^{(8,9)}\) Going forward depends on, above all, integrating all the patients’ feelings with expectations and support that will be organized on a pathway to overcome the suffering caused by sickness.

## Conclusion

Experience of sick individuals with sickle cell anemia and self-care strategies indicated favorable elements in seeking for adaptation to the sick in adult phase.

## Collaborations

Cordeiro RC; Ferreira SL and Santos ACC contributed to the conception of the Project, analysis and interpretation of data, drafting the manuscript, critical review relevant for intellectual content and approval of finals version to be published.

## References


Access of patients with myocardial infarction to cardiology reference hospitals

Acesso de usuários com infarto do miocárdio a hospitais referência em cardiologia

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Tânia Maria de Oliva Menezes¹
Carlos Antonio de Souza Teles Santos³
Fernanda Carneiro Mussi¹

Abstract

Objectives: Characterize the access of patients with myocardial infarction to cardiology reference hospitals

Methods: Cross-sectional study conducted in two cardiology reference hospitals. A sample of 100 patients, with a diagnosis of myocardial infarction, was interviewed employing a specific instrument. Mean, standard deviation and percentage values were used in the analysis.

Results: Male subjects; black skin; married; low socioeconomic status and mean age of 56.4 years predominated. The onset of symptoms at home, use of inadequate means of transportation, emergency service as the first place sought for assistance; and admission to cardiology reference hospitals up to the third medical assistance prevailed. Of the 67 patients with myocardial infarction with ST segment elevation, 12% received reperfusion therapies. The lack of resources was the main reason for the pilgrimage within the healthcare system.

Conclusion: Use of inappropriate means of transportation, low proportion of myocardial reperfusion, and lack of structure of the healthcare network to deliver care related to the infarct was observed.

Keywords
Public health nursing; Education, nursing; Myocardial infarction; Health services; Access to health services; Health services needs and demand

Descritores
Enfermagem em saúde pública; Educação em enfermagem; Infarto do miocárdio; Serviços de saúde; Acesso aos serviços de saúde; Necessidades e demandas dos serviços de saúde

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Conflicts of interest: there are no conflicts of interest to declare.
Introduction

Cardiovascular diseases are still the main cause of death and disability in Brazil and worldwide. Each year, 17.3 million deaths occur because of these diseases, and it is estimated that 40% of deaths will be related to them in 2020.(1) In Brazil, in 2010, 326,345 deaths occurred from cardiovascular diseases and, of this total, 79,662 were due to myocardial infarction.(2)

Myocardial infarction represents more than 80% of the cases of ischemic heart disease, being considered the most lethal(3) and significant cardiovascular disease. One of the factors contributing to the decline in mortality from myocardial infarction is the prompt medical care, since most deaths occur in the first hour after the onset of symptoms.(4,5)

The success of the treatment is associated with early initiation of chemical or mechanical coronary reperfusion therapies.(5) These therapies modify the progression of the disease, however, their effectiveness is time-dependent,(5) that is, the earlier the initialization the greater the therapeutic benefit.

Although the Brazilian health system is regarded as universal, it may not be able to guarantee patients with infarction access to appropriate care. The difficulty of access to health services of higher level of complexity has been identified as one of the factors favoring the fragmentation of health care.(6)

Methods

Cross-sectional study, conducted in two cardiology reference hospitals, in the city of Salvador, state of Bahia, northeastern Brazil. One institution is philanthropic and admits people for treatment through private health insurance agencies and through the Unified Health System; the other institution is public and admits people through the Public Regulation System of the state of Bahia.

The estimated prevalence for myocardial infarction of 99/100000 adults in Salvador, Bahia, was used as parameter to calculate the sample size (n) of 100 individuals.(8) The following parameters were also considered in the calculation of the sample:

\[ n = \frac{NP(1-P)}{(N-1)D + P(1-P)} \]

in which, \( D = \frac{B^2}{Z_{\alpha/2}^2} \) and \( B = 1 - \alpha \) \( P \)

\[ N - \text{total number of the population assumed during the period of data collection} = 1000; \ P - \text{proportion within the population studied} = 0.099; \ n - \text{sample size}; \ \alpha - \text{significance level}; \ (1 - \alpha) 100 - \text{confidence level}; \ B - \text{maximum estimated error desired}; \ Z_{\alpha/2} = 1.96; \ 1 - \alpha = 0.95, B = 0.04 \text{ or } 4\%.

Inclusion criteria were having a diagnosis of myocardial infarction with or without ST segment elevation, being hospitalized for at least 24 hours and the maximum of 20 days, being oriented in space and time and without medical restrictions for the interview.

The data collection instrument consisted of three parts with structured questions. Part I, Sociodemographic Characterization, examined data on the place of hospitalization, age, gender, self-declared ethnicity, schooling, marital status, employment status, household income, household members, number of dependents, place of residence and possession of a health insurance plan. Part II, Clin-
ic characterization, was aimed to obtain information regarding the type of infarction, execution of myocardial reperfusion and clinical manifestations of the infarction. Part III, Characterization of Access to Health Services, collected data regarding the location, date and time of symptom onset, means of transportation used, type and the number of health services accessed before being admitted to a cardiology reference hospital, the conduct of health professionals in the first place of assistance and knowledge of the participants on the health service that should be sought.

Data were collected by means of interviews conducted in inpatient units, the coronary care unit and the semi-intensive care unit. After the identification of individuals in the logbook and medical records, those who met the inclusion criteria and who were not scheduled for exams and/or procedures for an hour were selected. All data were obtained through the interview, except for the medical diagnosis that was verified in the medical record and confirmed with the physician assistant, as well as the date and time of hospital admission and the registration of myocardial reperfusion.

The data obtained were processed using the statistical software Stata, version 11.0. In the analysis, mean, standard deviation and percentage values were used. Data were presented in tables.

The development of this study complied with national and international ethical guidelines for research involving human subjects.

Results

Sociodemographic and clinical characteristics of the participants

Of the 100 individuals who suffered infarction, 71 were men, with a mean age of 58.7 years (SD 11.1) and 29 were women, with a mean age of 59.0 years (SD 12.1). Most were aged <60 years (56%). Predominant origin was Salvador and the Metropolitan Region (73%), black skin (71%), married/stable union (75%), low schooling (56% had completed elementary school and 13% were illiterate), monthly family income of up to three minimum wages (63%), up to 3 family members living on this income (58%), active employment status (67% were economically active, that is, employed, self-employed or retired with activity). Most lived with someone, a greater proportion with a partner (69%) and child/stepchild (65%).

Most individuals showed infarction with ST segment elevation (67.0%). Of these, 88% had no medical records of myocardial reperfusion. The predominant symptom was pain in the chest (81%), followed by sweating (66%) and respiratory distress (47%). The description of chest tightness (45%) predominated, followed by burning (36%), lasting more than 15 minutes (96%) and characterized as intensive (83%). Of the 89% of individuals who informed the frequency of pain, 74.2% characterized it as constant/uninterrupted.

Characterization of the access of participants to the first health service

The majority (76%) of the participants was at home when infarction symptoms started, followed by those at thoroughfares (18%) (Table 1).

The use of one’s own automobile/that belonging to acquaintances or a taxi (70%) to get to the health service prevailed. Only 11% of the participants used the ambulance service and, of these, 3% used regular ambulance and 8% used the Mobile Emergency Medical Service (SAMU, as per its acronym in Portuguese). (Table 1).

Regarding the type of health service sought for the first medical assistance, 89% sought an urgency and emergency service. Although most sought for the adequate service, 77% did not know which service was indicated for the treatment of myocardial infarction (Table 1).

At the time of occurrence of the cardiovascular event, 76% were in Salvador and in the Metropolitan Region. In the case of these individuals, the authors tried to identify the existence of an emergency service in the health district of their residence/stay, and it was not possible to obtain such information for three men. Thus, 84.9% of the 73 participants were in neighborhoods of Salvador that offered healthcare coverage. Knowing that 73 participants...
Access of patients with myocardial infarction to cardiology reference hospitals

Regarding the conducts of health professionals in the first place of care, for 82% of the participants the conducts were the ones expected (assisted and admitted or assisted, admitted and transferred). It is noteworthy that 18% were victims of unexpected conducts such as denial of service (6%), medical assistance and orientation to find another service (6%), medical assistance and subsequent discharge (4%), medical assistance and orientation to follow up with a cardiologist (2%), (Table 1).

**Characterization of the access of participants to cardiology reference hospitals after searching for the first health service**

In the public health network of Salvador, Bahia, and in the Metropolitan Region, the access of patients to cardiology reference hospitals does not happen directly, but through the central regulation. Thereby, participants must have passed by at least one health service prior to admission in these hospitals.

On average, participants passed by 1.6 (SD 0.9) services before admission to cardiology reference hospitals, which occurred for most of them in the second (60.6%) and in the third assistance (29.3%).

Table 2 shows the various types of health services visited by the participants until admission to the cardiology reference hospitals. With the exception of one participant who was admitted in the first visit, all others had to resort to another assistance before admission in the study sites. Most sought emergency services for first medical assistance, but 11 went to outpatient services or primary healthcare units.

Table 3 shows the conduct of health professionals for the 99 participants who were assisted at least once before admission to cardiology reference hospitals. In 80.1% of the 156 assistances received the conduct was “assistance, admission and subse-

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<th>Characteristics related to the access of the participants</th>
<th>n(%)</th>
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<tr>
<td>Place of symptom onset (n=99)*</td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>76(76.8)</td>
</tr>
<tr>
<td>Thoroughfare</td>
<td>18(18.2)</td>
</tr>
<tr>
<td>Work</td>
<td>5(5.1)</td>
</tr>
<tr>
<td>Means of transportation (n=99)*</td>
<td></td>
</tr>
<tr>
<td>Mobile emergency medical unit / Regular ambulance</td>
<td>11(11.1)</td>
</tr>
<tr>
<td>Automobile / Cab / Motorcycle</td>
<td>72(72.7)</td>
</tr>
<tr>
<td>Bus/Walking</td>
<td>16(16.2)</td>
</tr>
<tr>
<td>Type of health service sought as the first place of assistance</td>
<td></td>
</tr>
<tr>
<td>Service with urgency and emergency assistance **</td>
<td>89(89.0)</td>
</tr>
<tr>
<td>Service without urgency and emergency assistance***</td>
<td>11(11.0)</td>
</tr>
<tr>
<td>Mentioned knowing where to seek for health care</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23(23.0)</td>
</tr>
<tr>
<td>No</td>
<td>77(77.0)</td>
</tr>
<tr>
<td>Existence of emergency unit in the neighborhood of residence / stay in Salvador (n=73)****</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62(84.9)</td>
</tr>
<tr>
<td>No</td>
<td>11(15.1)</td>
</tr>
<tr>
<td>Sought the health services from the neighborhood of residence / stay in Salvador (n=50)*****</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>39(78.0)</td>
</tr>
<tr>
<td>No</td>
<td>11(22.0)</td>
</tr>
<tr>
<td>Conduct of health professionals in the first place for care</td>
<td></td>
</tr>
<tr>
<td>Expected conducts</td>
<td>82(82.0)</td>
</tr>
<tr>
<td>Unexpected conducts</td>
<td>18(18.0)</td>
</tr>
</tbody>
</table>

*One woman was in a health service performing exams when infarction symptoms started. **Open access hospital/Cardiology reference hospital/Emergency unit/Mobile emergency medical unit/***Outpatient Service/Primary Healthcare Unit. ****For users who were in Salvador and in the Metropolitan Region at the time of symptom onset; *****For users who were in Salvador, in the Metropolitan Region and at home at the time of symptom onset
Table 2. Types of health services sought according to the order of assistance received before admission to the cardiology reference hospitals

<table>
<thead>
<tr>
<th>Type of health service</th>
<th>Número de serviços de saúde procurados</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First (n=100)</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td>Emergency Unit</td>
<td>41</td>
</tr>
<tr>
<td>Mobile Emergency Service</td>
<td>39</td>
</tr>
<tr>
<td>Outpatient Service</td>
<td>8</td>
</tr>
<tr>
<td>Primary Healthcare Unit</td>
<td>7</td>
</tr>
<tr>
<td>Admission to cardiology reference hospitals*</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Number of the participants admitted to cardiology reference hospitals according to the number of health services visited

Table 3. Conducts of health professionals distributed by type of health service sought

<table>
<thead>
<tr>
<th>Conducts of health professionals</th>
<th>Hospital n(%)</th>
<th>Emergency Unit n(%)</th>
<th>SAMU* n(%)</th>
<th>Primary Healthcare Unit n(%)</th>
<th>Outpatient Service n(%)</th>
<th>Cardiology Reference Hospitals n(%)</th>
<th>Total n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical assistance, admission and subsequent transfer</td>
<td>61(78.2)</td>
<td>51(96.2)</td>
<td>9(100.0)</td>
<td>2(50.0)</td>
<td>2(18.2)</td>
<td>-</td>
<td>125(80.1)</td>
</tr>
<tr>
<td>Medical assistance and orientation to look for another service</td>
<td>5(6.4)</td>
<td>-</td>
<td>-</td>
<td>1(25.0)</td>
<td>7(63.6)</td>
<td>-</td>
<td>13(8.3)</td>
</tr>
<tr>
<td>Denial of assistance</td>
<td>7(9.0)</td>
<td>1(1.9)</td>
<td>-</td>
<td>1(25.0)</td>
<td>1(9.1)</td>
<td>1(100.0)</td>
<td>11(7.1)</td>
</tr>
<tr>
<td>Medical assistance and subsequent discharge</td>
<td>4(5.1)</td>
<td>1(1.9)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5(3.2)</td>
</tr>
<tr>
<td>Medical assistance and orientation to look for a cardiologist</td>
<td>1(1.3)</td>
<td>-</td>
<td>-</td>
<td>1(9.1)</td>
<td>-</td>
<td>-</td>
<td>2(1.3)</td>
</tr>
<tr>
<td>Total</td>
<td>78(100.0)</td>
<td>53(100.0)</td>
<td>9(100.0)</td>
<td>4(100.0)</td>
<td>11(100.0)</td>
<td>1(100.0)</td>
<td>156(100.0)</td>
</tr>
</tbody>
</table>

* Mobile Emergency Medical Service – SAMU, as per its acronym in Portuguese

Discussed

Consequent transfer**, especially in hospitals and emergency units. However, 19.9% of conducts were unexpected, both in minor and more complex services. Such conducts were described by participants as medical assistance and orientation to look for another service; denial of assistance; medical assistance and subsequent discharge or orientation to look for a cardiologist.

The 99 participants who underwent more than one service reported 156 reasons for going to another health service, such as insufficient resources (141 - 90.4%), followed by denial of care (7 - 4.5%), discharge after care (5 - 3.2%) and orientation to look for another service (3 - 1.9%). Of the 141 times that the lack of resources was mentioned, most of the times, the participants were unable to inform the type of resource unavailable (107 - 75.9%). When informed by the participants, the reasons that predominated were: impossibility to perform catheterization and percutaneous transluminal angioplasty (23 - 16.3%), impossibility to deliver emergency care (2.8%) and to conduct electrocardiograms (2 - 1.4%). Also, service overcrowding (3 - 2.1%) and absence of a physician/cardiologist (2 - 1.4%) were highlighted as reasons.

Discussion

The limits of the results of this study are related to the cross-sectional method that does not allow the establishment of cause and effect relations. The study contributed to greater understanding of the access of patients with myocardial infarction to public health services, in the sample studied. Its results are relevant to guide the actions of health managers and professionals, as they evidence the gaps in the care of patients with infarction in the healthcare network.

Male subjects were predominant, as it was also observed in other national studies, as well as age the group under 60 years, noting that women developed infarction at an early age, when considering the presence of early coronary artery disease in women aged ≤ 65 years and in men ≤ 55 years. The predominant marital status was married/with a partner, in agreement with other studies.

Participants had similar socioeconomic characteristics, expressed by the dependence on the Unified Health System, low level of schooling and low family income. Also, one third was professionally inactive, due to unemployment or retirement.
These findings evidence deficient socioeconomic conditions, which are associated with an increased risk of death from cardiovascular disease.\(^{(12)}\)

Most participants declared themselves as having black skin, a determining aspect to a high risk for cardiovascular events.\(^{(13)}\)

Most participants presented a typical clinical profile of myocardial infarction due to the nature and characteristics of the chest pain,\(^{(5)}\) and they were at home when the symptoms started. In the space of the house, surrounding people, such as family members and friends, have a fundamental role in optimizing the access of the individual to a health service, be it for the recognition of the severity of the situation or when alerted by the victims. To this end, the community in general needs to be trained, especially, to recognize cardiovascular events and to alert the emergency medical service.

Most participants used inappropriate transportation to go to the health service. A low percentage called the Mobile Emergency Medical Service, although this is the means recommended since it is equipped with human and material resources for the first medical assistance.\(^{(14)}\) Other national studies\(^{(9,15)}\) have also found that this service is poorly used, demonstrating that this situation still persists. Its low use may reflect the lack of knowledge or appreciation of its importance by the participants or indicate negative experiences regarding their performance in the city under study. Regarding this aspect, studies revealed problems in the time-response of this service in Brazilian cities.\(^{(16,17)}\)

For the first medical assistance, most participants went to an urgency and emergency service. However, most reported not knowing where to seek treatment at the time of a cardiovascular event. The discomfort caused by the infarction symptoms and the potential severity associated with them may have contributed to the pursuit of this type of service.

Participants who had an emergency unit in the health district of their place of residence / stay and were at home when the symptoms started sought a service in their district, which is expected in the infarction service network in Salvador, Bahia, when the service offers emergency care. It is important that users be educated about the appropriate service that can assist with their clinical condition and about its location, aiming the early treatment. Therefore, dissemination of information to the community about emergency services near the region of residence and place of work is necessary. Such information may be provided by nurses in various scenarios of action, as in primary care during monitoring programs as the HIPERDIA, considering that diabetes and hypertension are cardiovascular risk factors, and in the health education activities performed in the home and community settings. This information should also be offered to people with cardiovascular disease or with a potential risk for cardiovascular events, hospitalized or in outpatient services, as well as to their families.

Although there was a greater proportion of individuals who reported experiencing expected professional conducts in the first place of care, a portion was victim of misconduct, which was expressed in the form of lack of structure of the institutions and difficulty of clinical management of health professionals when caring for patients with infarct.

Most participants suffered infarction with ST-segment elevation similar to the proportion recorded by Ferreira et al. (2009). Among those with this type of infarction, only 12% were reperfused. Although some may not have met the criteria for myocardial reperfusion, these findings indicate exposure to a higher risk of death and complications and reiterate the need for optimization and qualification when caring for patients with infarct. There are reports of low prevalence of myocardial reperfusion in Brazilian cities in the literature.\(^{(1,19)}\)

In Salvador, Bahia, despite the creation of a network of care for infarction patients, Solla et al. (2013)\(^{(20)}\) found that of 287 patients with myocardial infarction with ST-segment elevation, only 90 underwent myocardial reperfusion therapies.

Therefore, despite advances in the knowledge of the treatment of the disease, it is still necessary to qualify and prepare health professionals to diagnose and treat it,\(^{(19)}\) and to improve public health services for the early implementation of therapeutic reperfusion.

The participants, on average, went through 1.6 health services before being admitted to a cardiol-
ogy reference hospital, which happened mostly in the second assistance received. It was expected that the admission did not occur in the first assistance because these hospitals only admit referred people. However, needing to receive assistance two or more times, before the admission to the hospital, was not expected. The research findings showed that the number of times people received assistance before hospitalization was associated with significant delays in having access to specialized care. Having to go to various health services and the unexpected conducts faced in these services, exposed the participants to higher morbidity and mortality risks and showed a deficiency in the municipal health network.(21)

The lack of structure of health services in the city was evident by the insufficient resources in the first institutions sought. This lack of structure has been observed from December 2003 to June 2004, showing that the conditions for early treatment for acute coronary syndromes appear to have had no significant changes.\(^\text{(21)}\)

Individuals with infarction need to rely on a network of health services that is prepared to assist them.\(^\text{(22)}\) Therein lies the importance of public policies that aim to organize the healthcare network with equipment, materials and skilled human resources. However, it is worth noting that the success of care depends not exclusively on the establishment of infarction care networks, but also on the commitment and scientific and technical quality of health professionals and on the awareness of the patients and the surrounding people to seek an emergency service early.

**Conclusion**

Use of inadequate means of transportation; emergency health services as first place for assistance; and medical assistance, admission and subsequent transfer as the most frequent conduct were predominant characteristics for individuals with infarction. Few individuals with myocardial infarction with ST-segment elevation underwent myocardial reperfusion. Admission to cardiology reference hospitals occurred mainly in the second service accessed, as it was expected; however, a significant portion had to rely on the third service due mainly to the lack of resources in the first services sought.

**Acknowledgments**

The present study is part of the matrix project entitled “Retardo pré-hospitalar face ao infarto do miocárdio: diferenças de gênero” funded by the Research Foundation of the State of Bahia (FAPESB, as per its acronym in Portuguese) - Process No. APP 121/2009 and coordinated by Prof. Fernanda Carneiro Mussi.

**Collaborations**

Mendes AS; Reis VRSS and Mussi FC participated in the project conception and development of the phases of the study, drafting of the article, adaptation to the journal’s guidelines and final approval of the version to be published. Menezes TMO collaborated with the data analysis and final approval of the version to be published. Santos CAST contributed with the project conception and with the analysis and interpretation of data.

**References**


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Parasitological profile of residents of a maroon community
Perfil parasitológico de moradores de uma comunidade quilombola

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Cesar de Oliveira2
Cynthia Maria Kyaw1
Antônio Marmoro Caldeira Júnior3
Pedro Sadi Monteiro1

Abstract
Objective: Analyzing data on prevalence and species of intestinal parasites among residents of a maroon community.

Methods: A non-probabilistic sample survey for accessibility or convenience was used. The sample consisted of 153 individuals who answered an epidemiological investigation form and underwent parasitological examination of feces by sedimentation technique of Hoffman-Pons-Janer and analysis of water, according to the multiple tube technique to estimate medium density of microorganisms. The selection of the sample collection sites took into consideration the environmental and sanitary criteria.

Results: The proportion of infested individuals was 16.8% and the statistically significant variables were the municipality of residence (p = 0.048) and hygiene habits of hand washing (p≤0.001). Variables such as piped water, presence of thermotolerant coliforms in the water (p = 0.038) and treatment of drinking water (p≤0.001) were statistically associated with the variable of diarrheal episode in the last month (p = 0.008).

Conclusion: The results indicated infestations by different species of parasites related to diarrheal episodes associated with poor hygiene conditions, especially the lack of drinking water treatment.

Resumo
Objetivo: Analisar dados sobre prevalência e espécies de parasitos intestinais entre moradores de uma comunidade quilombola.

Métodos: Foi utilizado levantamento amostral não probabilístico por acessibilidade ou conveniência. A amostra constituiu-se de 153 indivíduos que responderam uma ficha de investigação epidemiológica e que realizaram exames parasitológicos de fezes, por meio da técnica de sedimentação de Hoffman-Pons-Janer e da análise da água, segundo a técnica de tubos múltiplos, para estimativa da densidade média dos microrganismos. A seleção dos locais de coleta das amostras levou em consideração critérios ambientais e sanitários.

Resultados: A proporção de infestados foi de 16,8% e as variáveis estatisticamente significativas foram município de moradia (p = 0,048) e hábito de lavagem das mãos (p≤0,001). Variáveis como água encanada, presença de coliformes termotolerantes na água (p = 0,038) e tratamento da água de beber (p≤0,001) foram estatisticamente associadas à variável episódio diarreico no último mês (p = 0,008).

Conclusão: Os resultados indicaram infestações por diferentes espécies de parasitos relacionados a episódios diarrêicos associados às condições de higiene precárias, destacando-se a falta de tratamento da água para consumo humano.

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3Faculdade Sena Aires, Valparaíso de Goiás, GO, Brazil.

Conflicts of interest: no conflicts of interest to declare.
Parasitological profile of residents of a maroon community

Introduction

This study is based on the concept of health in its social determinants interface. The health of populations is defined as a result of the forms of social organization and production, which can generate large inequalities in living standards. This complex network of factors is interrelated and affects the health-disease process in the individual specificity and scope of the collective way of life.\(^{(1)}\)

Intestinal parasitosis is a public health problem and considered a disease closely related to socio-sanitary conditions.\(^{(2,3)}\) In data from the Brazilian Federal Government, the Kalunga territory is described as possessor of the lowest human development index in the state of Goiás, with notable problems related to housing, low educational level, frailty and even the total absence of basic sanitation and/or distribution of drinking water.\(^{(4)}\)

The scenario of social vulnerability justifies studies in the area of health and its social determinants, as well as the fact that in Brazil there are insufficient references on the topic of incidence of parasitism in the population, despite its relevance in the epidemiology and public health.\(^{(5)}\) Therefore, the question of parasitic infestations demands attention when it comes to specific minority groups.

This study aimed to analyze data on the prevalence of intestinal parasites among Kalunga residents, describing the species of greater prevalence and medical-social interest.

Methods

The study was carried out in the state of Goiás, in the municipalities of Cavalcante, Teresina de Goiás and Monte Alegre, in the west-central region of Brazil. Historically and numerically, Kalunga is considered the most important remaining maroon community of the region, with about 5,000 inhabitants.\(^{(6)}\)

The cross-sectional design, with non-probabilistic sample survey was chosen in the composition of the sample. Socioeconomic information and other data regarding the source of drinking water, sanitation and hygiene habits were collected. Stool examination was performed by the sedimentation technique of Hoffman-Pons-Janer and analysis of water, according to multiple tube technique to estimate the average density of microorganisms. The selection of the sample collection sites took into consideration environmental and health criteria.

Statistical analyzes were performed with the IBM Statistical Package for the Social Sciences application version 21, in partnership with the University College London. The chi-square test at a significance level of 5.0% and a confidence interval of 95% were adopted.

The development of the study met national and international standards of ethics in research involving human beings.

Results

The investigation form was answered by 67 families and 153 individuals (Table 1). It was observed that only two (1.3%) residents had permanent formal employment, while the remaining 151 (98.7%) survived with informal activities. The illiteracy rate was 51.0% (n = 78) and the monthly family income lower than minimum wage (n = 91, 59.5%) prevailed. In homes, the adobe was the most common material used for construction (n = 79, 51.6%), and burnt cement (n = 89, 58.2%) or dirt (n = 64; 41.8%) were used for indoor flooring. The earthen floor comprised 100 per cent of peridomestic space. The diet was based on subsistence cultivation of local (n = 91, 59.5%) crops. All residents were using water from rivers in the region, whether through capture by hoses (n = 87, 56.9%), wells (n = 38, 24.4%) or river water search with gallons (n = 28, 18.3%). Almost half of the residents (n = 76, 49.7%) did not carry out any treatment in the drinking water. Some level of thermotolerant coliforms was detected in 42.5% (n = 65) samples.

Only 64.7% (n = 99) of the residents had a bathroom inside the house. The use of septic tank occurred in 21.6% of cases (n = 33), the remaining residents were using black sump (n = 89, 58.2%) or open sewage discharge (n = 31, 20.3 %). As for the household waste disposal, 95.4% of Kalunga com-
community (n = 146) accumulated it on the ground for burning later. The presence of domestic animals was found in all residences. The occurrence of diarrhea in the previous two months was reported by 88.2% of respondents (n = 135) and 64.7% in the last month (n = 99).

The prevalence of intestinal parasites was 16.8%. Table 2 shows the distribution of the sample according to the presence of infestation. The municipality of Cavalcante had 13.3% of positive results for intestinal parasites, all *Endolimax nana*. Teresina de Goiás had 26.0%, of which 42.9% of *Entamoeba coli*, 28.6% of *Iodamoeba butschilii*, 14.3% of *E. nana*, 7.1% of *Entamoeba histolytica* and 7.1% of hookworms. Monte Alegre lot had 10.2% of positive results, of which 40.0% of *E. coli*, 20.0% of *E. nana*, 20.0% of *E. histolytica*, 10.0% of *I. butschilii* and 10.0% of hookworms. The variables gender, age and education showed a similar distribution, not constituting determinant for infestation. Among infested people, 14.1% reported diarrhea in the last month; 10.2% used water with the presence of thermotolerant coliforms; and 91.7% did not wash their hands regularly after physiological eliminations. There was a statistically significant association with the last two variables, with $p = 0.031$ and $p = 0.001$, respectively.

Table 3 shows the results of the percentage distribution of the sample by occurrence of diarrhea in the last month.

It was evident that among the infected individuals (n = 24), 58.3% reported diarrhea episodes in the previous month. However, only 14.1% of the residents without infestation reported such reference. The education variable inferred that there were no significant differences between literate and illiterate regarding the occurrence of diarrheal episode in the previous month. In the association between the occurrence of diarrhea in the last month and parasite species responsible for the infestation, the values were: 33.3% (n = 1) with *E. nana*, 60% (n = 6) with *I. butschilii*, 100.0% (n = 3) with *E. coli*, and 50.0% (n = 3) with *E. histolytica*; 100.0% (n = 2) of

## Table 1. Sanitary socioeconomic characteristics observed in Kalunga community

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes (n%)</th>
<th>No (n%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal employment</td>
<td>2 (1.3)</td>
<td>151 (98.7)</td>
</tr>
<tr>
<td>Education level (literacy)</td>
<td>75 (49.0)</td>
<td>76 (51.0)</td>
</tr>
<tr>
<td>Monthly income (lower than minimum wage)</td>
<td>91 (59.5)</td>
<td>62 (40.5)</td>
</tr>
<tr>
<td>Type of material used for construction of the house (adobe)</td>
<td>79 (51.6)</td>
<td>74 (48.4)</td>
</tr>
<tr>
<td>Type of indoor flooring (burnt cement)</td>
<td>89 (58.2)</td>
<td>64 (41.8)</td>
</tr>
<tr>
<td>Peridomicile (earthen floor)</td>
<td>153 (100.0)</td>
<td>-</td>
</tr>
<tr>
<td>Provenience of the water (river)</td>
<td>153 (100.0)</td>
<td>-</td>
</tr>
<tr>
<td>Piped water inside the house</td>
<td>87 (56.9)</td>
<td>66 (43.1)</td>
</tr>
<tr>
<td>Treatment with drinking water</td>
<td>76 (49.7)</td>
<td>77 (50.3)</td>
</tr>
<tr>
<td>Water with presence of thermotolerant coliforms</td>
<td>65 (42.5)</td>
<td>88 (57.5)</td>
</tr>
<tr>
<td>Presence of bathroom in peridomicile</td>
<td>99 (64.7)</td>
<td>54 (35.3)</td>
</tr>
<tr>
<td>Presence of septic tank at home</td>
<td>33 (21.6)</td>
<td>120 (78.4)</td>
</tr>
<tr>
<td>Destination of household waste (burned)</td>
<td>143 (95.4)</td>
<td>10 (4.6)</td>
</tr>
<tr>
<td>Presence of any animal</td>
<td>153 (100.0)</td>
<td>-</td>
</tr>
<tr>
<td>Grown food predominating in last meal</td>
<td>91 (59.5)</td>
<td>62 (40.5)</td>
</tr>
<tr>
<td>Case of diarrhea in the previous two months in the residence</td>
<td>135 (88.2)</td>
<td>18 (11.8)</td>
</tr>
<tr>
<td>Case of diarrhea in less than a month in the residence</td>
<td>99 (64.7)</td>
<td>54 (35.3)</td>
</tr>
</tbody>
</table>

## Table 2. Distribution of infestation according to municipality, gender, age group and educational level

<table>
<thead>
<tr>
<th>Variables</th>
<th>Infestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
<td></td>
</tr>
<tr>
<td>Cavalcante</td>
<td>2 (13.3)</td>
</tr>
<tr>
<td>Teresina de Goiás</td>
<td>13 (26.0)</td>
</tr>
<tr>
<td>Monte Alegre de Goiás</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10 (15.6)</td>
</tr>
<tr>
<td>Female</td>
<td>14 (15.7)</td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>13 (16.3)</td>
</tr>
<tr>
<td>18-50</td>
<td>7 (13.7)</td>
</tr>
<tr>
<td>&gt;51</td>
<td>4 (18.2)</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
</tr>
<tr>
<td>Literate</td>
<td>13 (17.3)</td>
</tr>
<tr>
<td>Illiterate</td>
<td>11 (14.1)</td>
</tr>
<tr>
<td>Diarrheal episode in the last month</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14 (14.1)</td>
</tr>
<tr>
<td>No</td>
<td>10 (18.5)</td>
</tr>
<tr>
<td>Thermotolerant coliforms in water</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td>No</td>
<td>15 (23.1)</td>
</tr>
<tr>
<td>Do you always wash your hands after using the toilet?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2 (3.5)</td>
</tr>
<tr>
<td>No</td>
<td>22 (22.9)</td>
</tr>
</tbody>
</table>

Parasitological profile of residents of a maroon community

Piped water showed a statistical significance in association with diarrheal episode in the last month (p = 0.008). Both in homes with indoor bathroom and in others, there was a high percentage of affirmative responses for the occurrence of diarrheal episodes: 66.7% (n = 66) and 61.1% (n = 33), respectively. There was a statistically significant association (p = 0.038) between the variables diarrheal episodes and presence of thermotolerant coliforms in the water, while 71.6% (n = 63) of households supplied by water with thermotolerant coliforms reported diarrheal episodes in the previous month.

Discussion

The limit of the results of this study refers to the cross-sectional design, in which the possible associations between variables are known only during analysis of data, thus not allowing a temporal knowledge of when a certain fact would have occurred, or even how a certain evolution would have happened.

It is relevant to know the parasitological profile of such a singular community, because it can contribute to the planning and programming of local and regional actions that address the real needs of the Kalunga community, taking into account cultural considerations, the tradition, the customs and values. The results of this study may have practical applicability in the field of public health, which is a vast practice area of nurses.

The exposure of the Kalunga community to predictors of occurrence of intestinal parasite infestations was observed. This is because the risk factors for intestinal parasites are the poor sanitary, educational, social and economic conditions; lack of water treatment for human consumption; the high rate of agglomeration of people; inappropriate soil use, as well as its contamination and of the food.(7)

These results suggest that intestinal parasites diseases can arise as a disorder capable of illustrating the interface between health and social conditions, demonstrating by means of the high proportion of infestation, the risk of exposure of residents and diarrheal cases,(8) and taking into account that water comes from rivers, through hoses, wells or active uptake in gallons. In most homes, it does not receive treatment before consumption. This is heightened in serious problem, since untreated water can

Table 3. Distribution of cases of diarrhea in the last month according to sanitary conditions of households and infestations by parasites

<table>
<thead>
<tr>
<th>Variables</th>
<th>Diarrheal episode in the last month</th>
<th>Yes n(%)</th>
<th>No n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infestation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14(58.3)</td>
<td>10(41.5)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>85(65.9)</td>
<td>44(34.1)</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>52(66.7)</td>
<td>26(33.3)</td>
<td></td>
</tr>
<tr>
<td>Literate</td>
<td>47(62.7)</td>
<td>28(37.3)</td>
<td></td>
</tr>
<tr>
<td>Type of parasite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cysts of Endolimax nana</td>
<td>1(33.3)</td>
<td>2(66.7)</td>
<td></td>
</tr>
<tr>
<td>Cysts of Iodomoeba butshilii</td>
<td>6(80.0)</td>
<td>4(20.0)</td>
<td></td>
</tr>
<tr>
<td>Cysts of Entamoeba coli</td>
<td>3(100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cysts of Entamoeba histolytica</td>
<td>3(50.0)</td>
<td>3(50.0)</td>
<td></td>
</tr>
<tr>
<td>Eggs of anci洛stomis</td>
<td>2(100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entamoeba hystolitica + eggs of hookworms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap water inside the house</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64(73.8)</td>
<td>23(26.4)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>35(53.0)</td>
<td>31(47.0)</td>
<td></td>
</tr>
<tr>
<td>Presence of bathroom inside the house</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>66(66.7)</td>
<td>33(33.3)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>33(61.1)</td>
<td>21(38.9)</td>
<td></td>
</tr>
<tr>
<td>Water with presence of Thermotolerant Coliforms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>63(71.8)</td>
<td>25(28.4)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>36(55.4)</td>
<td>29(44.6)</td>
<td></td>
</tr>
<tr>
<td>Treatment of drinking water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>36(46.8)</td>
<td>41(53.2)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>63(82.1)</td>
<td>13(17.1)</td>
<td></td>
</tr>
<tr>
<td>Do you always wash your hands after using the toilet?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>41(71.9)</td>
<td>16(28.1)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>58(60.4)</td>
<td>38(39.6)</td>
<td></td>
</tr>
</tbody>
</table>
be a source of transmission of diseases, including intestinal diseases.\(^{(9)}\)

Most of this group had no permanent formal employment, surviving through activities at the margins of existing labor standards in the country. Many families were below the poverty line or even indigence.\(^{(10)}\) Educational level was low because among the literate, 45.1% had only incomplete primary education; illiterates accounted for 51.0%. This reality revealed discrepancy relative to other regions because according to the Brazilian Institute of Geography and Statistics (IBGE – *Instituto Brasileiro de Geografia e Estatística*), the illiteracy rate is twice the national average of 8.6% among residents of rural areas.\(^{(11)}\)

In the studied villages, there was no demarcation of streets and there was certain isolation between houses. These followed the traditional style used by black ancestors who built their houses with local materials.\(^{(12)}\) Such physical, simple and rustic structure (adobe walls, burnt cement floor or earthen floor) associated with the sanitary standards of the population reflects the precarious socio-economic conditions.\(^{(13)}\)

The sanitary infrastructure is one of the main health demands of the community. Not all residents had a bathroom; 64.7% reported having bathroom just around the homes; and 34.3% used rivers or the soil for physiological eliminations. In houses with presence of excreta disposal system, 78.7% open sewage discharge and black sumps were predominant. The community had no regular waste collection and in 95.4% of cases this accumulation occurred on the ground to burn later. In every home, there were domestic animals, both within domestic space as around the houses. This situation of absence of toilet in most homes, accumulation of solid waste and disposal of human waste and household animals, favors not only the proliferation of vectors and microorganisms that cause endemic diseases and parasites, but also contamination of surface water sources.\(^{(13)}\)

The presence of thermotolerant coliforms in waters that supplied 42.5% of homes reinforces the hypothesis that the effluent waste produced can reach the sources of drinking water when they percolate the soil.\(^{(9)}\)

Intestinal parasites are an important indicator of the hygiene and sanitation conditions of the entire population.\(^{(14)}\) This corroborates the findings in the Kalunga community described so far, supporting the statistical significance \((p = 0.031)\) found between the variables presence of thermotolerant coliforms and infestation by enteroparasites.

The parasites identified in the study have mechanisms of fecal-oral transmission, with prevalence of the non-pathogenic over the pathogenic.\(^{(13)}\) This indicates contamination with fecal waste, which is plausible of understanding when considering the poor sanitary conditions of the Kalunga community.\(^{(6)}\) The finding reinforces the need of investment in preventive actions to promote health, especially in education and health, in infrastructure and basic sanitation.\(^{(15-17)}\)

The close relationship between hygiene habits and enteroparasite infestation\(^{(18)}\) supports the statistical significance \((p = 0.001)\) found between handwashing and infestation variables. Our hands serve as a vehicle of fecal-oral contamination, therefore, the lack or failure of principles of hygiene such as handwashing is a predisposing factor to infestation by intestinal parasites.\(^{(5,19)}\)

Diarrhea has approximately 88% of its occurrence attributed to water supply, inadequate sewage and hygiene.\(^{(20)}\) This fact justifies the high rates of diarrheal episodes in previous months to conducting the study: 64.7% in first month and 88.2% in the second. Although these conditions are not directly responsible for the occurrence of diarrhea, they favor the proximity of its determinants.\(^{(1)}\) Furthermore, the diarrheal event is related to the action of the parasite, with clinical manifestations proportional to the harbored parasite load.\(^{(5)}\)

The presence of infestation showed a similar pattern across the variables of municipality, gender, age and education. The proximity of the data can be related to the fact that Kalunga habitants live in towns / villages with no exact boundaries and similar living conditions.\(^{(21)}\) The statistical significance \((p = 0.048)\) of the municipality variable confirmed the proposed.
The occurrence of diarrhea had statistical significance in the association with presence of thermotolerant coliforms and piped water. The unavailability of piped water is a determinant factor of diarrheal disorder because easy access to water contributes to personal, domestic and food hygiene, without which it is impossible to break the cycle of intestinal parasites transmission.\(^{(22)}\) In addition, water quality is a potentiating factor of interruption of the chain.\(^{(18)}\)

As previously described by other authors, the study also showed that in the Kalunga community sanitation conditions were deficient, public services of water treatment non-existing, and living conditions were inadequate in terms of infrastructure and Quality of Life.\(^{(6,23,24)}\) This scenario is aggravated by the disposal of human and solid waste in peridomestic areas close to rivers; by the consumption of untreated water; and the contamination of water by thermotolerant coliforms. All these are associated with the prevalence of insufficient hygiene habits, high percentage of parasites and poor sanitation.\(^{(25)}\)

Such environmental fragility negatively impacts on the social determinants of health and keeps the Kalunga community prone to intestinal parasites.\(^{(9)}\)

**Conclusion**

The Kalunga community showed infestation by different parasites associated with diarrheal episodes. Cases of diarrhea were associated with precarious hygiene conditions, especially the lack of drinking water treatment.

**Acknowledgements**

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**Collaborations**

Rangel DLO contributed to project design, execution of the research, drafting the article and relevant critical revision of the intellectual content. Oliveira C; Kyaw CM and Caldeira Júnior AM contributed to the execution of the research. Monteiro PS contributed to the final approval of the version to be published.

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Nursing staff knowledge in relation to complications of diabetes mellitus in emergency services

Conhecimento da equipe de enfermagem nas complicações do diabetes mellitus em emergência

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Mara Ambrosina de Oliveira Vargas¹
Juliana Balbinot Reis Girondi¹

Abstract

Objective: To investigate nursing staff knowledge in relation to acute complications of diabetes mellitus (DM) in emergency services.

Methods: A qualitative study conducted with 18 nursing staff members working in an adult emergency hospital service. Inclusion criteria were: 1) having worked for at least six months in the emergency service; 2) having no plans of being absent from the service. Semi-structured interviews were recorded and conducted individually. The thematic analysis was used for organizing and analyzing data.

Results: Four themes emerged: 1) recognizing the signs and symptoms associated to severity in diabetes; 2) determining the urgency of care for people with diabetes; 3) the sequence of nursing care for acute complications of diabetes; and 4) recognizing risks and complications during nursing care.

Conclusion: The nursing staff working in the studied adult emergency service displayed knowledge in relation to how to care for acute DM complications, however, there were limitations regarding routine care practices.

Keywords
Emergency nursing; Diabetes mellitus; Diabetes complications; Nursing care

Resumo

Objetivo: Investigar o conhecimento da equipe de enfermagem sobre assistência nas complicações agudas do diabetes mellitus em serviço de emergência.

Métodos: Pesquisa qualitativa realizada com 18 profissionais da equipe de enfermagem de um serviço hospitalar de emergência para adultos. Critérios de inclusão: atuação no serviço de emergência há pelo menos seis meses; sem previsão de afastamento do serviço. As entrevistas gravadas foram realizadas individualmente, utilizando roteiro semi-estruturado. Para organização e análise dos dados, seguiram-se a Análise Temática.

Resultados: Emergiram quatro temas: reconhecimento dos sinais e sintomas associados à gravidade no diabetes; determinação da urgência nos atendimentos das pessoas com diabetes; sequência dos cuidados de enfermagem nas complicações agudas do diabetes; reconhecimento dos riscos e complicações durante o atendimento de enfermagem.

Conclusão: Os profissionais de enfermagem que atuam numa emergência adulto possuem conhecimento acerca do atendimento às complicações agudas do diabetes, porém há limitações referentes à prática rotineira dos cuidados.

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Conflicts of interest: there are no conflicts of interest to declare.
Introduction

Diabetes mellitus (DM) refers to a group of metabolic diseases characterized by high levels of blood glucose (hyperglycemia) due to defects in insulin secretion and/or action. In 2002, there were 173 million people diagnosed with diabetes throughout the world, and this number is estimated to reach 300 million by 2030.(1) This disease ranks among the most serious health problems due to its high rates of morbidity, disabilities, and premature death, as well as the public cost involved with its treatment and related complications.(2)

There are two main acute situations related to diabetes in the professional practice of adult emergency nursing: severe hypoglycemia and diabetic ketoacidosis. Professionals must immediately identify both conditions, as they can provoke altered level of consciousness leading to airway impairment, coma and even death.(1)

Considering the Brazilian context, in which hospital emergency services can be the entryway into the Brazilian Unified Health System (SUS, as per its acronym in Portuguese), it is essential that nursing staff master the management of such emergency situations. Diabetes-related emergency care must be organized in order to ensure patient embracement, and quality and decisive care, thus reducing acute DM morbimortality rates.(3,4)

Thus, the objective of this study was to investigate the nursing staff knowledge of care for acute DM complications in emergency services.

Methods

This was a qualitative study conducted with nursing professionals working in an adult emergency service in a teaching hospital in Santa Catarina, southern Brazil. The risk classification system adopted by the SUS was used to define the priority of patients’ treatment: red (emergency), orange (very urgent), yellow (urgent), green (not very urgent), blue (not urgent) and white (procedures).

Eighteen professionals participated in the study, five of which were nurses and 13, nursing technicians. Sample size was guided by the principle of data saturation and staff members from all work shifts were included: morning, afternoon and night. Inclusion criteria were: 1) having worked for at least six months in the hospital’s emergency service; 2) having no plans of being absent from the service for more than a month during data collection.

Semi-structured interviews were recorded and conducted individually between May and July 2013. In order to ensure participants’ anonymity, nurses were identified with a capital “N” and nursing technicians with “NT”, and they were assigned a number according to the order in which they were interviewed.

The assumptions of the thematic analysis were observed for data organization and analysis: First, the speeches were organized, once the interviews had been fully transcribed and an exhaustive reading of the empirical material was conducted. Afterwards, speech excerpts were organized by selecting relevant ideas that formed units of meaning, which were then coded and organized into sub-themes related to the broader themes.

The development of this study complied with ethical guidelines for research involving human subjects.

Results

As characteristic signs of diabetes-related alterations, nurses and nursing technicians mentioned sweating, altered levels of consciousness, pallor, ketotic breath, thirst, labored breathing, tachypnea, general discomfort, nausea, apathy, polyuria, weakness, faintness, dizziness, abdominal pain, deterioration of general condition, altered visual perception and edemas.

Some nurses reported how the risk classification applied to patients in emergency care: “[...] if there is hyperglycemia, the patient is classified as yellow”; “ [...] if the patient condition is more severe, he/she is classified as orange”; “If the blood glucose test is altered, patients are classified with a higher color, or if there other alterations, they are orange or red, depending on
the severity”; “If blood glucose is above 300mg/dl, I immediately classify patients as orange and pass them on to the doctor”.

All nurses emphasized the importance of referring emergency patients directly to medical care: “[..] if they wait outside the emergency room, their condition may worsen, so it’s best to take them directly to a resuscitation or medication room [..].” “[..] if blood glucose is below 60mg/dl, I place them straight inside [..].” “[..] hypoglycemia or ketoacidosis characterizes priority patients and I generally accompany them all the way inside, I call the doctor and request immediate care. I place the patient inside the emergency service, inside the examining room or in the resuscitation room. But I don’t leave them waiting outside the emergency service, they stay inside, practically in front of the doctor so that procedures can begin.”

Within the sub-theme priority of care, extreme glycemic levels were mentioned as priority (hypoglycemia and hyperglycemia): “[..] when blood glucose test indicates very altered results, either very high or very low, that is a priority.” “Both diabetic ketoacidosis and hypoglycemia are priorities, emergency situations.”

Altered levels of consciousness were also mentioned as priority: “[..] when the patient arrives unconscious and the family member reports that they have a history of diabetes,” “[..] fainting,” “[..] drowsiness.”

Blood glucose testing was mentioned as a priority nursing care action and establishing venous access as the first nursing action in diabetic ketoacidosis and severe hypoglycemia situations. Other first and priority nursing actions reported by participants included identifying the situation, verifying respiratory pattern, assessing signs and symptoms, monitoring vital signs, conducting arterial blood gas analysis and providing supplementary oxygen.

Regarding general actions recommended for acute DM complications, all participants highlighted compliance with medical prescription; institutional routine in cases of hypoglycemia; patient stabilization and assisting medical procedures when a situation becomes worse. They also mentioned primary patient assessment according to the ABCDE approach (airways, breathing, circulation, disability, exposure), and monitoring hydroelectrolytic and acid-base balance.

Nursing care records in diabetic ketoacidosis and severe hypoglycemia situations were carried out on complementary nursing observation forms, vital sign forms (with slots for time of measurement and values of blood glucose tests and the presence or absence of respective correction insulin). All nurses mentioned keeping nursing assessment records, emphasizing that the nursing care methodology is only applied to patients in the resting unit.

Five nursing technicians reported not keeping any type of care record: “[..] maybe the nurses write it down.” One nurse reported sometimes keeping records only on the patient’s emergency form: “If the patient does not have a chart yet, I end up keeping records right there on the emergency care form.”

Regarding diabetes-related complications, professionals mentioned rebound glycemic instability due to glucose or insulin treatment, which can lead to hypoglycemia or hyperglycemia, according to the situation: “[..] it all happens very fast, the patient’s blood glucose changes and can cause damage if it decreases or increases too quickly.”

Professionals also mentioned diabetic coma as an important complication that can occur during patient care: “[..] the patient can fall into a diabetic coma and have an arrest [..].” “If patients wait too long to receive care, they risk progressing to a hyperosmolar coma and presenting complications and needing more invasive care.” Cardiac arrest and even death were mentioned: “With diabetic ketoacidosis, there is a risk of initiating insulin too prematurely and not monitoring hydroelectrolytic parameters, the patient can lose too much potassium and have an arrest.”

Other reported complications were patient falls, risk of seizures and multiple complications.

Discussion

This study presented limitations related to the routine practice of the care procedures mentioned by participants, such as the absence of record keeping by some nursing technicians and the poor use of the institution’s hypoglycemia
Another limitation is one inherent to qualitative research, as it limits the degree to which results can be generalized.

Four themes emerged: 1) recognizing the signs and symptoms associated to severity in diabetes; 2) determining the urgency of care for persons with diabetes, 2) the sequence of nursing care for acute complications of diabetes and 4) recognizing risks and complications during nursing care.

Within the first theme, participants reported 17 diabetes-related signs and symptoms that indicate severity, with emphasis on sweating and pallor, frequently identified during initial assessments of hyperglycemic cases. According to the literature, altered levels of consciousness can occur both in hypoglycemia and in diabetic ketoacidosis. (1,5-11) Five nurses mentioned altered mental status as important, and of these, three emphasized it as a sign of severity.

Some of the signs and symptoms of hypoglycemia described in the literature were not mentioned, such as: tremors, anxiety, hunger, paraesthesia, dysarthria, gait disorders and headaches. Similarly, participants did not report some severe symptoms of diabetic ketoacidosis, such as flushing, vomiting, dehydration and arterial hypotension, which can progress to hypovolemic shock. (1,7,10,12,13)

Ketotic breath and Kussmaul breathing, which are commonly cited in the literature as characteristic signs and indicators of severity in diabetic ketoacidosis, were mentioned by six interviewees. Ketotic breath is not always present or noticeable. However, altered breathing patterns are visible and manifested initially as tachypnea, followed by Kussmaul breathing, which can progress to shallow breathing in more severe cases. (1,2,7,12)

Within the second theme, determining the urgency of care for persons with diabetes, situations such as extreme blood sugar levels prevailed as requiring priority care. Severe hypoglycemia can provoke arrhythmia and increased myocardial demand for oxygen, favoring angina conditions, in which irreversible neurological damage can occur. Thus, it is essential that it be identified as early as possible. (8,12,14-16)

Considering the third theme, sequence of nursing care for acute complications of diabetes, professionals identified hypoglycemia as having higher priority over hyperglycemia. Regarding priority actions in cases of diabetes-related complications, nurses mentioned venipuncture and nursing technicians mentioned periodic verification and monitoring of blood glucose levels. According to protocol guidelines, measuring blood glucose levels systematically following a rigorous verification schedule is part of the duty of nursing professionals, as well as recording blood glucose levels and administered doses on an institutional form. (15,17) When treating diabetic ketoacidosis with intravenous insulin infusion, blood glucose must be verified on an hourly basis. After blood pH is normalized, verifications can occur every four hours. (2,11,14-16)

Establishing venous access for large-caliber catheters is required due to the need for vigorous hydration, continuous insulin infusion, and hydroelectrolytic and acid-base imbalance correction, in accordance with each case. One nurse reported only performing punctures on patients in the presence of a physician. The Brazilian Federal Nursing Council establishes that if there is a clinical protocol validated by the institution for cases of hypoglycemia, nursing staff can establish venous access in severe cases and carry out the initial treatment until the physician returns for reassessment and to continue medical management. However, this protocol is underused, probably because there is a physician present in the sector 24 hours a day. (11,18)

Still regarding sequence of care, participants mentioned the issue of nursing care records. Five nursing technicians stated not keeping any record of the care provided in cases of severe hypoglycemia and diabetic ketoacidosis. It is the responsibility and duty of nursing professionals to record professional actions in the patient’s chart and in other appropriate documents, electronic or non-electronic. Nursing records document the work done by the team and are indicators of quality care; whereas their incorrect completion and lack of periodicity are factors that hamper assessment, certification and the creation of indicators, and also hinders the action of
inquiries and investigations that can provide professionals and institutions with legal support.\(^{(17)}\)

All nurses mentioned keeping care records on complementary observation and nursing assessment forms. They also emphasized the difference between routine care in the Internal Emergency Service and in Resting. Nursing care is only systematized in the Resting sector, where all patients have gone through admissions, which includes nursing assessment and prescriptions. According to legislation, these actions are mandatory in all environments, whether public or private, in which professional nursing care takes place.\(^{(19)}\) It is a tool that allows nurses to apply their technical and scientific knowledge and document patient care; actions which characterize nursing professional practice and help define the role of nurses in a multiprofessional health team.\(^{(19)}\)

Regarding the fourth theme, risks and complications that can occur while caring for cases of hypoglycemia and diabetic ketoacidosis, most professionals mentioned rebound glycemic instability due to insulin or glucose treatment, with oscillations to lower or higher extremes of blood glycemic levels, according to the situation. Glycemic variation is an important factor in the rise of mortality by inducing cellular oxidative stress.\(^{(14)}\) Iatrogenic hypoglycemia affects up to 90% of individuals treated with insulin.\(^{(9)}\)

The most common complications to diabetic ketoacidosis are hypoglycemia as a result of inappropriate insulin use, hypocalcemia due to inadequate doses of insulin and/or sodium bicarbonate and hyperglycemia secondary to the interruption of insulin infusion without the correct compensation with subcutaneous insulin, hypoxemia, and acute pulmonary edema and hyperchloremia due to excessive fluid infusion. Cerebral edema is a rare complication among adults, but can progress to a seizure and even a coma and cardiopulmonary arrest, complications mentioned by a great portion of those interviewed. Severe hypocalcemia offers the risk of complications such as cardiac arrhythmia with cardiopulmonary arrest or respiratory muscle weakness, which can potentially progress to acute respiratory failure.\(^{(12,17,20,21)}\) Risk of falls is also present, especially if there is mental confusion and agitation.

Investigating nursing staff knowledge with respect to treating diabetic patients who seek out emergency services, allows us to identify the gaps and strengths of nursing care. Considering that emergency services are frequently an entryway to the health system, careful assessment and efficient care can avoid complications and even death among diabetics.

Further studies in this line of research need to be carried out to identify and prepare for possible training needs for nursing professionals who work in adult emergency services. It is important to mention that, despite this study being local, it presents important themes that must be highlighted globally: nursing staff knowledge of diabetes; protocols for treating diabetic patients in emergency services; urgent and emergency care actions that can be conducted by nursing professionals; professional training on the topic of urgencies and emergencies when caring for diabetic patients, and preventing complications when caring for such patients in emergency services.

**Conclusion**

The nursing professionals working in the studied adult emergency service displayed knowledge regarding the clinical presentation of acute DM complications. Severe hypoglycemia was more frequently mentioned than diabetic ketoacidosis. They were able to recognize signs and symptoms associated with the severity of diabetes; determining urgency of care for individuals with diabetes; sequence of nursing care and acute complications of diabetes, and recognizing risks and complications during nursing care.

**Collaborations**

Oliveira DM contributed with the project conception, data analysis and interpretation, drafting of the article and content review. Schoeller SD and Hammerschmidt KSA collaborated with the project conception, data analysis and interpretation.
drafting of the article, critical review of its relevant intellectual content and final approval of the version for publication. Vargas MAO and Girondi JBR contributed with the critical review of its relevant intellectual content and the final approval of the version for publication.

References


The healthcare network to the amputee

Rede de atenção à saúde à pessoa amputada

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Laila Crespo Drago¹
Flávia Regina Souza Ramos¹

Abstract

Objective: Analyzing the network of care for the amputee from the perspective of healthcare professionals inserted in high complexity services.

Methods: A qualitative research with data collection through semi-structured interviews with professionals from different areas involved in care of the amputee.

Results: It was observed that a part of the interviewed professionals knows and acts in a perspective of referral to rehabilitation, while others are unaware of the flow of referrals, as well as of the care network that supports these users.

Conclusion: The data showed the multidisciplinary and inter-institutional work occurring in some areas as the great fortress in the context of rehabilitation. The main weaknesses found were the lack of knowledge of high complexity professionals about the networks of health care, and the way rehabilitation is seen, not inserted in a context of care unless there is the possibility or occurrence of amputation.

Keywords
Health care (Public Health); Nursing in public health; Ethics; Amputation; Information services

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Conflicts of interest: no conflicts of interest to declare.
Introduction

Chronic non-transmissible diseases, especially those affecting the cardiovascular system and those associated with external causes such as traffic accidents and work accidents are responsible for a growing number of people with physical sequelae. These consequences result in physical disability and require services and actions aimed at the rehabilitation and social re-integration with guaranteed quality and access.\(^1,2\)

Among the people affected by the aforementioned diseases, a significant number progresses to amputation. Amputation may result from inadequate prevention of underlying diseases, therapeutic action in the treatment of advanced diseases or an acute event.\(^3,4\) It is considered a reconstructive surgery in which a limb or a body part is partially or completely separated from the organism.\(^5\)

Therefore, there is the need for assistance in the sense of rehabilitation of amputated people, regardless of the origin causes, assuring them the right to comprehensive health care for health maintenance.

Among the organizational models of health actions and services are the Health Care Networks, with different levels of care integrated to guarantee the excellence of care to users of the system. It aims to enhance the performance of the health system in terms of access, equity, health and clinical effectiveness and economic efficiency.\(^5\) Health Care Networks seek to maintain horizontal relationships between health care services and the Primary Health Care. Meanwhile, the users of the health system pass through these networks to care for their health, depending on the effectiveness of the agreement between them to have their needs met.\(^5\) In this sense, studies\(^6,7\) indicate the difficulties faced by people with disabilities as they seek to implement their rehabilitation, confronted with professional disinterest, distrust of the existing public policies, the unprepared educational system and difficulties of access.

Therefore, this study is justified since the amputation has a great social impact and involves services and professionals of all levels of health care. Concomitant to this, care and treatment in health to amputees requires that health professionals develop specific skills on the issue of amputations.\(^8,9\) Skills for interventions in the care process of amputation and rehabilitation should be contextualized and developed with guidance of public policies and its availability of physical infrastructure, management of people, processes and services of a network of care coordinated and based on the principles of the Brazilian SUS – Sistema Único de Saúde (Unified Health System).

Given the above, the objective of this study was to analyze the network of care for the amputee from the perspective of health professionals who work with people who underwent amputation.

Methods

This is a qualitative study carried out at the level of high complexity care. It included public hospitals of the municipalities that make up the great Florianópolis, southern Brazil, with specialized services in traumatology and orthopedics, physiatry, general surgery, vascular surgery and Rehabilitation Center.

The study participants were health professionals involved in caring for people with amputation during hospitalization and rehabilitation. Professionals who refused to participate in the study and those away on vacations or sick leave during the period of data collection were excluded. The speeches of participants were coded to carry out the analysis.

Semi structured interviews were carried out with 19 professionals from the following fields of knowledge: doctors, nurses, social workers, nutritionists, psychologists and physiotherapists. The interviews took place in the workplace of each professional from December 2012 to March 2013, then were audio recorded and later transcribed and imported into Atlas Ti software, to assist in the process of categorizing the data. Data analysis was by analysis of content. It is inserted in a set of techniques for analyzing the communication processes in order to learn the content delivered and is organized in three phases: (1) pre-analysis, in which the material is organized by reading and
systematization of initial ideas; (2) exploration of the material, aimed at defining categories, categorization and classification of data; (3) treatment of the results, inference and interpretation, which corresponds to the moment of critical and reflective analysis of the results found, confronting them with the objectives outlined at the beginning of the research.

The development of the study met national and international standards of ethics in research involving human beings.

Results

In order to present the results obtained in the research, it was chosen to develop a scheme in the form of a flowchart, representing how the network of care for the amputee is mentioned by the interviewed professionals.

In figure 1 the roles of Primary Health Care and the Family Health Strategy are emphasized, which, at times, do not participate of the process of care network in the care of people with amputation. Some professionals expressed that referral to rehabilitation occurs in a direct flow of high complexity, demonstrated here by the link established between the hospitals that perform the amputation surgery and the outpatient visit after the procedure, and the reference service in rehabilitation. Figure 2 represents there commendation of the Ministry of Health, in which the primary care is the coordinator element of the reference and counter-reference for various health services. Thus, it is found that the results presented in figure 1 are not consistent with the recommendations of the Ministry of Health.

Figure 1. Flowchart of the network from the perspective of professionals in high complexity; PHC - Primary Health Care; FHS - Family Health Strategy
From the speeches of the study participants emerged two topics to be discussed, namely: Fortresses of the care network and Weaknesses of the care network.

In the category entitled ‘Fortresses of the care network’, it is noteworthy the allusion to the word fortress, where the positive points of the care network are discussed. In this direction, it appears that the Brazilian health system, from its principles of universality, fairness and integrity in health care, recognizes and seeks to ensure the necessary conditions for rehabilitation to amputated people.

The partnerships between various professions, or jobs done jointly in the same institution and focused on referrals for rehabilitation emerged as the fortresses of the care network to the amputee. It is worth noting the effort of professionals to referring amputated people to other rehabilitation services, even to distant counties, interacting with primary care.

In the category called ‘Weaknesses of the care network to the person with amputation’, the word weakness is understood as barriers established throughout the rehabilitation process of people with amputation, whether by failure of the public system or unawareness of the process flow by the professionals involved in it. One obstacle mentioned by the professionals working with amputated people is about which professionals should be responsible for referrals of such patients to the reference in rehabilitation. However, no consensus was found among participants.

Discussion

The limitation of the present study was the difficulty in finding at least one professional from each area to carry out the interview. The results represent the previously fixed view from the level of care of the hospital. On the other hand, the existence of health care networks demands the understanding of a continuous process in which various levels interact with each other to establish the right of access to health services, one focus of this article.

In face of the study results, a significant fortress found was the fact that Health Care Networks are consolidated as a public health policy. Therefore, they have shared responsibility at all levels of management, and greater financial incentive.\(^{(10)}\)
A positive point indicated by the speeches of professionals regards the understanding of the flow of the care network services. Many clearly understand the need to begin the process of acceptance with amputated people in order to rehabilitate them for social interaction and work activities. They also demonstrate knowledge of the network of assistance offered to people who depend on these services. In this sense, studies discuss\cite{11,12} the importance of highly specialized training professionals, who are focused on educating the people with amputation throughout their rehabilitation process that is aimed at rehabilitating in an adequate time and optimizing the treatment costs. By the logic of the authors, professionals trained on how and when to rehabilitate help the service that pays the treatment for preparing a limb for prosthetic placement. It is noteworthy that in the context of acquired disability it should be taken into account the singularities of each person, the variables as degree of capability and functionality, in the sense to offering support to people, respecting their choices, compensations and potentialities.\cite{13-15}

Another emphasis in the speeches of professionals concerns the work of the multidisciplinary team. Internally in institutions, social service works with psychology, nursing, medicine and physiotherapy. Externally, the social service acts in contact with primary care, showing a significant work in this care network.

The commitment demonstrated by professionals in the preparation of post-amputation referrals as soon as the diagnosis is established is noteworthy. Some showed specific knowledge on the financial support to rehabilitation provided by the public system, with distinction on the areas of physiotherapy and social work. Furthermore, they demonstrated understanding the bureaucracy that permeates the referral of people with amputation to rehabilitation services.

Finally, there is the fact that the public system for rehabilitation of people with disabilities offers the Assistive Technology, which is the whole arsenal of resources and services that contribute to provide or enhance functional abilities of people with disabilities by promoting independent living and social inclusion.\cite{16}

With regard to weaknesses in the care network for people with amputation, many of the professionals interviewed in this study demonstrated not knowing the referrals to rehabilitation, passing the activities of referrals and patient orientation to social workers and physiotherapy professionals, which highlights the fragmentation of care. In this way, each professional of the health team covers part of the service. While nursing and medicine are occupied with the care of the operative wound and associated comorbidities, physiotherapy acts in the orientation of exercises to prepare the stump for possible prosthetics, and social service interacts with patients, their families and the care network to ensure continuity of treatment.

The fragmentation between the practice of professionals intra and inter institutionally is due to the universal crisis of health care systems, which were designed and developed with the idea of continuity of a practice aimed at solving acute events, but disregarding the contemporary epidemic of chronic conditions. Hence, there is the demand of a health situation in the twenty-first century which is treated by a health care system established in the twentieth century, when acute conditions were predominant.\cite{16}

In this study, the majority of amputations occurring in local services are a result of chronic diseases. Thus, the healthcare team must know the care network to these people. In this perspective, it is observed that the international literature of different countries shows good evidence that networks of health care can improve clinical quality, including sanitary outcomes, user’s satisfaction and cost reduction of health care systems.\cite{14}

A highlight for the speeches of professionals is the lack of referrals to the primary care network, which should be the service that most assists users, because with the proximity of primary care units and with the service of the family health strategy, the real needs and difficulties of people with amputation would be better addressed. And yet, part of the complications originating from chronic diseases that progress to amputation can be avoided.
with early diagnosis and establishment of an effective treatment and follow-up in primary care. The PHC (APS – Atenção Primária à Saúde) in theory, is the central axis of the health care network (RAS – Rede de Atenção à Saúde) for being the first level of care, with emphasis on its role of solving the most common health problems and from which it conducts and coordinates care across all points of attention.\(^{(17)}\)

When inferring such importance to primary health care, it is necessary to criticize the norms that organize basic, medium and high complexity health services. In this sense, by considering primary health care as less complex than the secondary and tertiary levels, there is a distortion of the concept of complexity, regarding the trivialization of primary health care.\(^{(16)}\) Furthermore, a person with amputation or with potential risk to evolve into an amputation, demands a complex process of health care, which will permeate all levels of complexity. Following this logic, one can consider the existence of a paradox, as the figure 2 indicates that primary care is the foundation of the pyramid of the health system, which should be focused on injury prevention, reducing the suffering of users and the operating costs of the health system in the secondary and tertiary levels. And yet, in a network system that covers all levels of care, primary care is the central point of coordination between the existing services and assistance to the population.

When questioned about the existence of a care protocol for amputated people, the medical professionals and nursing are assaid there is nothing systematic to follow. The reason is that, in most cases, amputation is performed by complications of vascular diseases, a fact that particularizes the care even further. The existence of protocol is mentioned by social service professionals in the sense of referrals to a rehabilitation service. Another information emphasized by respondents is the difficulty of vascular medical professionals in referring patients to the rehabilitation reference after carrying out the procedure. But this information is refuted by the professionals heard at the rehab center, claiming that they accept referrals from any doctor and that the major difficulty is the appropriate referral of the amputated person to the reference center.

Another relevant aspect in this study shows how professionals understand the rehabilitation. Many attribute it to a specific service, with qualified professionals that are able to reestablish the social condition of the person with amputation, with procedures, such as the fitting of prosthetics. But it is clear that actions should permeate rehabilitation care, from the conduction of treatment to chronic diseases until the restoration of mental, physical and social conditions of people with amputation.\(^{(18)}\)

**Conclusion**

The main objective of the study, understanding the care network to the amputee, was achieved. On one hand, the effort of professionals in providing health care to this part of the population was evident. On the other hand, the obstacles that make it difficult to provide services focused on rehabilitation, where patients can have their rights granted by law and avoid much inconvenience and long waiting periods. The major existing fortress in the context of rehabilitation is a consolidated legislation, and established through the Networks of Health Care, in addition to multidisciplinary and inter institutional work present in some spaces. The main weakness found were the lack of knowledge of high complexity professionals about the networks of health care, and the way rehabilitation is seen, not inserted in a context of care unless there is the possibility or occurrence of amputation.

**Acknowledgements**

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**Collaborations**

Vargas MAO and Ramos FRS contributed to project design, development of analysis and data interpretation. Ferrazzo S; Drago LC and Schoeller SD collaborated with the construction of the critical and relevant revision of intellectual content. The authors
The healthcare network to the amputee

Vargas MAO and Schoeller SD cooperated with the final approval of the version to be published.

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Factors related to absenteeism due to sickness in nursing workers

Fatores relacionados ao absenteísmo por doença entre trabalhadores de Enfermagem

Eliete Boaventura Bargas

Maria Inês Monteiro

Abstract

Objective: To evaluate the association of absenteeism due to sickness with sociodemographic characteristics and relate it to the work of nursing professionals.

Method: Descriptive exploratory study that analyzed medical certificates of up to 15 days off work presented by 994 nurses at a university hospital. The data source was the frequency system of the institution.

Results: Most workers were female, married and technical nurses. The average age was 41.9 years and a third worked in adult inpatient services. Of the 994 professionals, 645 had at least one sick day.

Conclusion: Absenteeism due to illness is complex and multifactorial. The factors associated with it were: age group, education, function, shift, time in the institution and workplace.

Keywords
Nursing staff; Occupational health nursing; Nursing administration research; Working conditions; Absenteeism

Descritores
Recursos humanos de enfermagem; Enfermagem do trabalho; Pesquisa em administração de enfermagem; Condições de trabalho; Absenteísmo

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Accepted
August 11, 2014

Resumo

Objetivo: Avaliar a associação do absenteísmo por doença com o perfil sociodemográfico e relacioná-lo ao trabalho dos profissionais de Enfermagem.

Métodos: Estudo descritivo exploratório, que analisou atestados médicos de até 15 dias de afastamento do trabalho apresentados por 994 profissionais de enfermagem de um hospital universitário. A fonte de dados foi o sistema de frequência da instituição.

Resultados: A maioria dos trabalhadores era do sexo feminino, casada e técnica de Enfermagem. A idade média foi de 41,9 anos e um terço atuava no serviço de internação de adultos. Dos 994 profissionais, 645 apresentaram pelo menos um dia de atestado médico.

Conclusão: O absenteísmo por doença teve fatores complexos e multifatoriais. Os fatores associados a ele foram: grupo etário, escolaridade, função, turno de trabalho, tempo na instituição e local de trabalho.

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Introduction

The absence at work is, at present, an important problem in different countries and entails high costs for the institutions.\(^{(1)}\)

Absenteeism due to illness is the period of lack of labor attributable to an inability of the individual\(^{(2)}\) and can be categorized into voluntary (for private reasons), legal (supported by law, as is the case of maternity leave, disgust and vacation), compulsory (impediment due to disciplinary action) and by disease. Absences due to work accidents are recorded differently.\(^{(3)}\) The work environment of nursing professionals is unhealthy, both in material and psychological aspects and, being subject to poor work conditions, the maintenance of their health is impaired.\(^{(3)}\)

Different studies have shown that absenteeism varies according to sex, age, occupation, level of responsibility and work, among others.\(^{(4-7)}\) However, studies point to the need for comparative information between hospital departments and correlate absenteeism due to illness to the environment, the nature of work and individual characteristics.\(^{(6,7)}\)

A systematic literature review covering the period from 1986 to 2006 found that individual factors (previous record of missed work) and work related factors (job satisfaction, organizational commitment and job involvement) reduced absenteeism, with emphasis on the absence of a theory that supports the discussion of absenteeism.\(^{(8)}\)

A longitudinal Canadian study identified six factors that interfered with the reduction in absenteeism: inflexible work schedule, understaffing, stress at home and at work, poor work conditions, low wages, communication with superiors and colleagues and lack of incentives not to abuse of sick leaves and health problems.\(^{(9)}\)

Recognizing the problems resulting from absenteeism due to illness as important in labor dynamics, since this interferes with work conditions and undermines the nursing care environment, this study was proposed to evaluate the association of absenteeism due to illness with sociodemographic characteristics and relate it to the work of nursing professionals.

Methods

Descriptive exploratory study with a quantitative approach, developed in a public university hospital of high complexity, with approximately 400 beds, in the state of São Paulo, in southeastern Brazil. The database of the Human Resources department with information on age, sex, marital status, education, function, workplace, shifts, employment relationship and working time was used – these details make up the frequency system used by the institution.

The total sample consisted of 994 nursing professionals approved by public tender, working in the Department of Nursing. The group that showed absenteeism due to illness was composed of 645 nursing professionals. Absenteeism was analyzed considering the absences from work due to illness lasting ≤ 15 days, supported by medical certificates for the period from January 1 to December 31, 2011.

The variables were divided into two categories: related to sociodemographic (gender, age, marital status and education) and job characteristics (function, capacity, employment relationship and time in the institution).

The data were entered into a Microsoft Excel spreadsheet and analyzed using the Statistical Analysis System 9.2 and R-Project version 2.15.0. Descriptive analyses were performed to check the consistency of data and comparisons were made involving the sociodemographic and work related variables in the total sample and in the group with absenteeism (Mann-Whitney and Kruskal-Wallis tests). The chi-square test was used to study between categorical variables. For all analyses, the significance level was < 5%.

The study met national and international standards of ethics in research involving human subjects.

Results

The majority of the sample was female, married, with a mean age of 41.9 ± 10.1 years, ranging between 20 and 69 years. Regarding their edu-
cation, most professionals had completed high school (593 professionals), followed by higher education (372 professionals) and elementary school (29 professionals). As for their job, 6% were nursing assistants, 67% technical nurses and 27% were baccalaureate nurses. Just over a third of the employees were in Adult Inpatient Unit; 17% were in Operating Rooms and Material Centrals; 13% in Intensive Care Units; 9% in clinics; 9% in Pediatric Nursing, 8% in Support and Diagnosis Unit; 7% in the Emergency Unit and 2% worked directly in the Department of Nursing. In relation to the time on the job, the average was 11.4 ± 8.7 years.

Education and absenteeism due to illness were statistically significant in both the group with absenteeism and the entire group (p = 0.02 and 0.0007). The age group was statistically significant in the overall study group (p = 0.001), but not significant among those who had at least one absence (p = 0.14). There was no statistical relationship between sex and absenteeism (p = 0.56) (Table 1).

Job and absenteeism were statistically significant in the entire study sample and those with medical certificates (p = 0.02 and 0.0000). As for the workplace, the analyses were statistically significant in the study sample (p = 0.02) and not statistically significant among those who had at least one absence (p = 0.9). Also, work time was statistically significant in the overall study sample (p = 0.0000) and not statistically significant for professionals who had at least one absence (p = 0.10) (Table 2).

### Table 1. Days absent, up to 15 days, of the nursing staff according to sociodemographic variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total days per absence</th>
<th>Only employees who presented certificates</th>
<th>Study sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>Average</td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
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<tr>
<td>Female</td>
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<td>550</td>
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</tr>
<tr>
<td>Male</td>
<td>1,018</td>
<td>95</td>
<td>10.7</td>
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<tr>
<td>Age group (Years)</td>
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<tr>
<td>20-29</td>
<td>533</td>
<td>58</td>
<td>9.2</td>
</tr>
<tr>
<td>30-39</td>
<td>2,190</td>
<td>201</td>
<td>10.9</td>
</tr>
<tr>
<td>40-49</td>
<td>2,421</td>
<td>200</td>
<td>12.1</td>
</tr>
<tr>
<td>50-59</td>
<td>2,089</td>
<td>163</td>
<td>12.8</td>
</tr>
<tr>
<td>60-69</td>
<td>261</td>
<td>23</td>
<td>11.3</td>
</tr>
<tr>
<td>Marital status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
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<tr>
<td>Divorced/Widowed</td>
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</tr>
<tr>
<td>Single</td>
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<td>11.0</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>405</td>
<td>25</td>
<td>16.2</td>
</tr>
<tr>
<td>High School</td>
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<td>397</td>
<td>12.1</td>
</tr>
<tr>
<td>College</td>
<td>2,291</td>
<td>223</td>
<td>10.3</td>
</tr>
</tbody>
</table>

SD - Standard deviation
Factors related to absenteeism due to sickness in nursing workers

Discussion

One limitation of this study is that, being retrospective, it was not possible to identify whether the cause of absenteeism was because of work or motivation related illness. Another aspect is that the data from the institution’s information system did not include the International Classification of Disease (ICD) for worker absenteeism for 2011.

In this study, the average number of absent days was observed to be lower in the 20-29 age group and higher in the 50-59 age group.

Research conducted in Canada found that older female workers, nursing assistants and those with lower wage per hour are more likely to exhibit absenteeism.\(^{10}\)

In the present study, nursing assistants had higher average of absences compared to nursing technicians, and these, more than baccalaureate nurses, but the relationship with age was non-linear.

A similar finding was reported in a study conducted in the state of Rio de Janeiro, in which the authors report that nurses tended to take a leadership role in the team, which requires greater diligence; had lower risk of contamination and disease and also took on administrative tasks.\(^{11}\) The higher prevalence of unplanned absences in the high school level of education category was also observed in another study.\(^{12}\)

There was a relationship between absenteeism and work shift \((p = 0.04)\) in the present study. Research conducted in Spain corroborates these findings.\(^{13}\) Absenteeism of the nursing staff was analyzed by implementing a shift rotation system in 2011, with an increased workday (8h to 20h, 20h to 8h, 10h to 22h, 22h to 10h and from 15h to 8h) and, consequently, an increase in rest days. There was a reduction of 40.8% in

### Table 2. Days absent, up to 15 days, of the nursing staff according to work related variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total days absent</th>
<th>Only employees who presented certificates</th>
<th>Study sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Average</td>
<td>SD</td>
</tr>
<tr>
<td>Job</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
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<td>162</td>
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<tr>
<td>Technical nurse</td>
<td>4,380</td>
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<td>11.4</td>
</tr>
<tr>
<td>Nursing assistant</td>
<td>786</td>
<td>48</td>
<td>16.4</td>
</tr>
<tr>
<td>Workplace</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing Department</td>
<td>80</td>
<td>6</td>
<td>13.3</td>
</tr>
<tr>
<td>Surgery/Materials Center</td>
<td>1,548</td>
<td>124</td>
<td>12.5</td>
</tr>
<tr>
<td>Support and Diagnosis</td>
<td>647</td>
<td>49</td>
<td>13.2</td>
</tr>
<tr>
<td>Service</td>
<td></td>
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<tr>
<td>Outpatient Unit</td>
<td>837</td>
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<tr>
<td>Adult Inpatient Unit</td>
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<td>11.6</td>
</tr>
<tr>
<td>Pediatric Nursing Unit</td>
<td>542</td>
<td>52</td>
<td>10.4</td>
</tr>
<tr>
<td>Emergency Unit</td>
<td>424</td>
<td>40</td>
<td>10.6</td>
</tr>
<tr>
<td>Intensive Care Unit</td>
<td>762</td>
<td>75</td>
<td>10.2</td>
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<tr>
<td>Shifts</td>
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<tr>
<td>Morning</td>
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<td>3,299</td>
<td>279</td>
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<tr>
<td>Administrative</td>
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</tr>
<tr>
<td>Relationship</td>
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<tr>
<td>CLT</td>
<td>6,735</td>
<td>585</td>
<td>11.5</td>
</tr>
<tr>
<td>CLT retired</td>
<td>759</td>
<td>60</td>
<td>12.6</td>
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<tr>
<td>Time in the institution (Years)</td>
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<tr>
<td>0-4</td>
<td>1,466</td>
<td>151</td>
<td>9.7</td>
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<tr>
<td>5-9</td>
<td>1,893</td>
<td>163</td>
<td>11.6</td>
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<tr>
<td>10-14</td>
<td>1,317</td>
<td>100</td>
<td>13.2</td>
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<tr>
<td>15-19</td>
<td>402</td>
<td>37</td>
<td>10.9</td>
</tr>
<tr>
<td>20-24</td>
<td>1,507</td>
<td>134</td>
<td>11.2</td>
</tr>
<tr>
<td>25-29</td>
<td>909</td>
<td>60</td>
<td>15.1</td>
</tr>
</tbody>
</table>

CLT - Consolidation of Labor Laws
overall absenteeism, but there was an increase in absenteeism due to illness, probably due to the longer shifts.\(^{(13)}\)

As for the workplace, similar results were found and the largest registered absence from work due to illness was at the Material Center, in which 91.6% of the workers had at least one absence, followed by the Surgical Center.\(^{(7)}\)

Although not the subject of this study, it is important to highlight some research in other countries, which related absenteeism and the ratio of nursing professionals to patients, with no similar data in national surveys.

A study conducted at a university hospital in France found that patient satisfaction was related to absenteeism due to illness of the nursing staff.\(^{(14)}\) Research conducted in the UK found that hospitals with greater numbers of patients per nurses had 26% higher mortality rates than observed in those with a lower patient to nurse ratio.\(^{(15)}\) In a study conducted in Brazil, a high patient to nurse ratio was associated with increased incidents of patients falling from beds, central venous catheter infections, absenteeism, staff turnover and low patient satisfaction.\(^{(16)}\) In Germany, it was identified that low nurse-patient ratio was associated with higher risks for the patient and also other stress indicators, such as absenteeism.\(^{(17)}\) A study in the Netherlands reported as predictors of absenteeism, health complaints and consultations with the general practitioner.\(^{(18)}\)

The findings of this study support the consideration of absenteeism with complex and multifactorial determinants that need to be analyzed from the perspective of the working process, the institutional culture, the health and welfare of workers. It is important that the coordination of nursing services involves the workers in carrying out the planning and decision-making, so that there is commitment from the staff and workers feel that they are a fundamental part of the work process.

This study contributed to the advancement of knowledge in nursing regarding the characteristics absenteeism due to illness, signaling the importance of investing in actions aimed at promoting health and quality of life at work.

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**Conclusion**

Absenteeism due to illness has complex and multifactorial features, so that it is essential to approach these to improve the quality of nursing care, satisfaction with work and reducing institutional costs. Factors associated with absenteeism due to illness were: age, education, job, shift, time in the institution and workplace conditions.

**Acknowledgments**

Statistician Henrique Ceretta, the General Directorate of Human Resources (GDHR), GDHR’s IT and Nursing departments, HC/Unicamp for their contribution to the development of this study.

**Collaborations**

Bargas EB contributed with the project design, analysis and interpretation of data and drafting the article. Monteiro MI contributed with the project design, analysis and interpretation of data, critical review of the content and approval of the version to be published.

**References**

Factors related to absenteeism due to sickness in nursing workers


Abstract

Objective: To analyze the association between illness and occupational risks among mental health workers.

Methods: An epidemiological cross-sectional study was conducted with 163 professionals who were members of a multidisciplinary mental health team at a psychiatric hospital, split into two groups: those who had and those who had not taken medical leaves of absence. Data were collected using a questionnaire examining the studied variables and by accessing records of medical leaves of absence.

Results: The identified occupational risks were primarily exposure to bacteria and virus (87.12%), tobacco smoke (82.82%), noise (81.60%), adopting inadequate body posture due to ergonomic inadequacies (72.39%) and stress (71.17%). Approximately 64.42% of workers became ill during the period of the study and 270 diagnoses were recorded.

Conclusion: More than half of the mental health workers presented health problems, however, only a small portion of their diagnoses was included on the list of occupational diseases. There were statistically significant associations among the variables illness, chemical risk and psychosocial risk.

Keywords
Occupational risks; Health personnel; Mental health; Occupational health; Occupational diseases

Resumo

Objetivo: Analisar a associação entre o adoecimento de trabalhadores em saúde mental e os riscos ocupacionais.

Métodos: Estudo epidemiológico, transversal, realizado com 163 profissionais da equipe multidisciplinar de saúde mental atuante em um hospital psiquiátrico, divididos em dois grupos: com e sem licença saúde. O instrumento de pesquisa foi um questionário com as variáveis de estudo e os registros de licenças saúde.

Resultados: Os riscos ocupacionais identificados foram principalmente; exposição a bactérias e vírus (87,12%), tabaco (82,82%), ruídos (81,60%), adoção de postura corporal inadequada devido a inadequações ergonômicas (72,39%) e ao estresse (71,17%). Cerca de 64,42% dos trabalhadores adoeceram no período de estudo sendo registrados 270 diagnósticos.

Conclusão: Mais da metade dos trabalhadores de saúde apresentam problemas de saúde, no entanto, pequena parte dos diagnósticos registrados consta da lista de doença ocupacional. Houve associação estatisticamente significativa entre a variável adoecimento e risco químico e risco psicossocial.
Introduction

The International Labour Organization (ILO)\(^{(1)}\) estimates that 2.34 million people die every year due to work-related accidents and diseases, of which 2.02 million (86.3\%) are caused by occupational diseases and 321 thousand are due to work accidents. Every day, there are 6,300 work-related deaths, 5,500 of which are caused by professional diseases. Such figures are unacceptable and indicate the need for more intense actions in the quest for decent work (i.e., work which delivers fair income and is exercised in conditions of freedom, equity and security, as well as ensuring a dignified life).

The risks ensuing from technological, social and organizational changes (consequences of globalization) severely affect the health of workers, despite the fact that some traditional risks have been reduced due to greater security, improved regulations and better technical resources employed. Parallel to this, emerging risks have given rise to new types of occupational diseases, such as those caused by deficient ergonomic conditions, exposure to electromagnetic radiation and psychosocial situations.\(^{(1)}\)

In the specific case of workers in mental health services, due to the accumulated experience of one of the authors of this study as a worker and a manager in psychiatric institutions, we believe that more attention should be given to the work situations experienced by such professionals. In addition to the common occupational risks to which workers in health institutions in general are exposed, these mental health professionals perform their activities with individuals affected by mental illness in a setting imbued with high emotional tension due to the unpredictability of their patients’ behaviors.\(^{(2)}\)

Brazil’s National Worker’s Health Policy recognizes health promotion as a means for pursuing equity and stimulating intersectorial actions. Furthermore, it is also a form of strengthening social participation, promoting changes in organizational culture, incentivizing research and disseminating initiatives directed at the health promotion of health workers, managers and users of the Unified Health System (SUS, as per its acronym in Portuguese).

The issue of occupational diseases among mental health workers due to exposure to occupational risks as well as the consideration of national and international worker’s health guidelines motivated the development of the present study to answer the following question: Do mental health workers recognize the occupational risks to which they are exposed and which can make them ill? The objective of this study was to examine the association between illness and occupational risks among mental health workers.

Methods

This was a retrospective and epidemiological cross-sectional study using a quantitative approach, which was conducted at a psychiatric hospital in the city of Teresina, Piauí, Brazil. The target population was a multidisciplinary health team consisting of 185 workers from 12 different professional categories, of which 163 (88.1\%) participated in the study and met the selection criteria of working in the institution in the period between 2010 and 2012. Workers who were on vacation or leaves of absence during the period of data collection, which took place between October 2012 and March 2013, were excluded.

Data were collected using a survey with closed-ended questions regarding the workers’ sociodemographic, occupational and health information (this instrument was assessed and approved by five researchers with regard to its objectivity and adequacy for the study). Data were also collected by consulting the hospital’s records for medical leaves of absence, whose diagnoses were described as per the International Statistical Classification of Diseases and Related Health Problems (ICD 10).

To verify the association between workers’ health problems and occupational risks, research subjects were assigned to one of two groups. The first group comprised workers who had taken medical leaves of absence (GA), whereas the second consisted of those who had not taken leaves of absence (GB). The occupational risks identified by the subjects
were then analyzed, and the two groups were finally compared to each other.

Based on data from GA, the authors determined whether medical diagnoses for leaves of absence were included in the Brazilian Ministry of Health’s List of Work-Related Diseases. In the sequence, the possible relationship between health problems presented by workers and their reported occupational risks was analyzed.

Data were recorded in Microsoft Excel spreadsheets and transferred to the Statistical Package for the Social Sciences (SPSS) program, version 19.0, for descriptive statistical analysis. Fisher’s test was used to analyze how the health problems presented by workers were related to their occupational risks.

The development of this study complied with national and international ethical guidelines for research involving human subjects.

Results

Most subjects were female, between the ages of 40 and 59 years (127-77.92%), married (82-50.31%), brown-skinned (self-reported) (103-63.19%), had less than a college education (67-41.10%), resided with a partner or spouse (89-54.60 %) and had one child (125-76.69%), worked 30 hours a week (80-49.08%) or 40 hours a week (43-26.38%). Most did not smoke (153-93.87%) or drink alcohol (130-79.75%). A great number reported frequently practicing leisure activities (65-39.88%), although 42(25.77%) subjects did not report carrying out any leisure activity. Table 1 presents the results of occupational risks reported by mental health workers as per work sector.

Among the occupational risks in the Inpatient Unit, the most common were: physical (noise 57-61.96%); biological (bacteria 86-87.76% - and viruses 69-70.41%); chemical (tobacco smoke 87-92.55%); ergonomic (inadequate posture 52-62.65%); and psychosocial risks (stress 64-78.05% - and physical assault 40 - 43.48%).

In the Urgent and Emergency Care Sector, the most commonly reported risks were: physical (noise 9 - 90.0%); biological (bacteria 8 - 80.0% - and viruses 6 - 60.0 %); chemical (tobacco smoke 9 - 81.82%); ergonomic (inadequate posture 7 - 77.78%); and psychosocial risks (stress 6 - 66.67% - and physical assault 5 - 50.0 %).

In the Day Hospital, the most commonly reported risks were: physical (noise 9 - 90.0%); biological (bacteria 8 - 80.0% - and viruses 6 - 60.0 %); chemical (tobacco smoke 9 - 81.82%); ergonomic (inadequate posture 7 - 77.78%); and psychosocial risks (stress 6 - 66.67% - and physical assault 5 - 50.0 %).

In the Outpatient Unit, the main risks identified were: physical (noise 15 - 83.33%); biological (viruses 21 - 100 % – and bacteria 20 - 95.24 %); chemical (tobacco smoke 9-52.94%); ergonomic (inadequate posture 11 - 68.75 %); and psychosocial risks (stress 11 - 84.62%).

In our search to answer the question on what makes psychiatric hospital workers ill, the medical leave of absence records of all 163 participants were analyzed. Of this sample, 105(64.42%) workers took a total of 297 leaves of absence and 58 did not have any records of a leave of absence during the period investigated in this study.

The highest prevalence of medical leaves of absence took place in 2012 (105 - 35.35%), followed by 2011 (98 - 33.00%) and 2010 (94 - 31.65%).

In 2010, 48 workers were absent due to medical leaves of absence, of which 14(29.17%) received diagnoses included on the List of Work-Related Diseases and 34(70.83%) workers took leaves of absence due to health problems that were not included on this list. In 2011, 48 workers were absent due to medical leaves of absence, of which 12(25.0%) were due to diagnoses included on the List of Work-Related Diseases and 36(75.0%) were workers whose diagnoses were not listed. In 2012, 54 workers took a medical leave of absence, of which 17(31.48%) were diagnosed with diseases included on the List of Work-Related Diseases and 37(68.52%) had diagnoses that were not listed.

The results of this documentary research show that the 297 medical leaves of absence recorded
### Table 1. Occupational risks to which mental health workers are exposed in psychiatric hospitals by work sector (n= 163)

<table>
<thead>
<tr>
<th>Risks</th>
<th>Inpatient Unit</th>
<th>Urgent and Emergency Care</th>
<th>Day Hospital</th>
<th>Outpatient Unit</th>
<th>Food and Nutrition Services</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>57(61.96)</td>
<td>12(60)</td>
<td>9(90)</td>
<td>15(83.33)</td>
<td>3(75)</td>
<td>3(100)</td>
</tr>
<tr>
<td>Temperature</td>
<td>29(31.52)</td>
<td>4(20)</td>
<td>4(40)</td>
<td>1(5.56)</td>
<td>4(100)</td>
<td>-</td>
</tr>
<tr>
<td>Humidity</td>
<td>13(14.13)</td>
<td>-</td>
<td>2(11.11)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vibrations</td>
<td>10(10.87)</td>
<td>2(20)</td>
<td>5(27.78)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Abnormal pressure</td>
<td>6(6.52)</td>
<td>1(5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Radiation</td>
<td>-</td>
<td>-</td>
<td>1(5.56)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Biological</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria</td>
<td>86(87.76)</td>
<td>14(70)</td>
<td>8(80)</td>
<td>20(95.24)</td>
<td>2(100)</td>
<td>4(100)</td>
</tr>
<tr>
<td>Viruses</td>
<td>69(70.41)</td>
<td>10(50)</td>
<td>6(60)</td>
<td>21(100)</td>
<td>1(50)</td>
<td>4(100)</td>
</tr>
<tr>
<td>Bacilli</td>
<td>67(68.37)</td>
<td>11(55)</td>
<td>6(60)</td>
<td>10(47.62)</td>
<td>1(50)</td>
<td>3(75)</td>
</tr>
<tr>
<td>Parasites</td>
<td>61(62.24)</td>
<td>9(45)</td>
<td>5(50)</td>
<td>9(42.86)</td>
<td>2(100)</td>
<td>4(100)</td>
</tr>
<tr>
<td>Protozoa</td>
<td>43(43.8)</td>
<td>7(35)</td>
<td>2(20)</td>
<td>11(52.38)</td>
<td>1(50)</td>
<td>4(100)</td>
</tr>
<tr>
<td>Animals</td>
<td>8(8.16)</td>
<td>-</td>
<td>2(20)</td>
<td>1(4.76)</td>
<td>2(100)</td>
<td>-</td>
</tr>
<tr>
<td>Plants</td>
<td>3(3.06)</td>
<td>-</td>
<td>1(10)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>2(2.04)</td>
<td>1(5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chemical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco smoke</td>
<td>87(92.55)</td>
<td>19(85.71)</td>
<td>9(81.82)</td>
<td>9(62.94)</td>
<td>1(33.33)</td>
<td>1(33.33)</td>
</tr>
<tr>
<td>Dust</td>
<td>32(34.04)</td>
<td>5(23.81)</td>
<td>5(45.45)</td>
<td>6(35.29)</td>
<td>1(33.33)</td>
<td>2(66.67)</td>
</tr>
<tr>
<td>Chemical products</td>
<td>25(26.6)</td>
<td>4(19.05)</td>
<td>2(18.18)</td>
<td>3(17.65)</td>
<td>2(66.67)</td>
<td>1(33.33)</td>
</tr>
<tr>
<td>Vapors</td>
<td>8(8.51)</td>
<td>1(4.76)</td>
<td>1(9.09)</td>
<td>3(17.65)</td>
<td>3(100)</td>
<td>-</td>
</tr>
<tr>
<td>Gases</td>
<td>5(5.32)</td>
<td>-</td>
<td>2(18.18)</td>
<td>2(11.78)</td>
<td>2(66.67)</td>
<td>1(33.33)</td>
</tr>
<tr>
<td>Others</td>
<td>4(4.26)</td>
<td>-</td>
<td>-</td>
<td>2(11.78)</td>
<td>-</td>
<td>2(66.67)</td>
</tr>
<tr>
<td>Smog</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fog</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1(5.56)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ergonômicos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate posture</td>
<td>52(62.65)</td>
<td>9(50)</td>
<td>7(77.78)</td>
<td>11(68.75)</td>
<td>1(100)</td>
<td>3(75)</td>
</tr>
<tr>
<td>Monotony and repetitiveness</td>
<td>33(39.76)</td>
<td>6(33.33)</td>
<td>3(33.33)</td>
<td>6(37.5)</td>
<td>-</td>
<td>2(50)</td>
</tr>
<tr>
<td>Physical strain</td>
<td>30(36.14)</td>
<td>3(16.67)</td>
<td>2(22.22)</td>
<td>4(25)</td>
<td>-</td>
<td>1(25)</td>
</tr>
<tr>
<td>Carrying weight</td>
<td>20(24.1)</td>
<td>1(5.56)</td>
<td>1(11.11)</td>
<td>-</td>
<td>-</td>
<td>1(25)</td>
</tr>
<tr>
<td>Strict productivity control</td>
<td>5(6.02)</td>
<td>1(5.56)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>1(1.2)</td>
<td>1(5.56)</td>
<td>-</td>
<td>1(6.25)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Psychosocial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stressful situation</td>
<td>64(78.05)</td>
<td>14(70)</td>
<td>6(66.67)</td>
<td>11(64.62)</td>
<td>3(100)</td>
<td>2(66.67)</td>
</tr>
<tr>
<td>Physical assault</td>
<td>40(43.48)</td>
<td>11(55)</td>
<td>5(50)</td>
<td>3(16.67)</td>
<td>1(25)</td>
<td>1(33.33)</td>
</tr>
<tr>
<td>Working night shifts</td>
<td>24(29.27)</td>
<td>8(40)</td>
<td>-</td>
<td>1(7.69)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relationship with boss, coworkers and patients</td>
<td>24(29.27)</td>
<td>9(45)</td>
<td>2(22.22)</td>
<td>1(7.69)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Heightened environmental stress</td>
<td>23(28.05)</td>
<td>4(20)</td>
<td>3(33.33)</td>
<td>3(23.08)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Long working hours</td>
<td>12(14.63)</td>
<td>1(5)</td>
<td>1(11.11)</td>
<td>-</td>
<td>1(33.33)</td>
<td>-</td>
</tr>
<tr>
<td>Intense work routine</td>
<td>1(1.22)</td>
<td>2(10)</td>
<td>-</td>
<td>1(7.69)</td>
<td>-</td>
<td>2(66.67)</td>
</tr>
<tr>
<td>Others</td>
<td>1(1.22)</td>
<td>-</td>
<td>-</td>
<td>1(7.69)</td>
<td>-</td>
<td>1(33.33)</td>
</tr>
</tbody>
</table>
in the three-year period of 2010-2012 involved 64.41% of the workers and resulted in a total of 4671 days of absences.

Figure 1 illustrates the distribution of medical diagnoses recorded for the 297 leaves of absence, grouped according to the ICD-10.

The group that was most commonly recorded for medical leaves of absence was that of factors influencing health status (60.58 - 20.40%), followed by diseases of the circulatory system (29.40 - 9.90%); diseases of the musculoskeletal system and connective tissue (27.91 - 9.40%); injury, poisoning and other external causes (27.90 - 9.40%) and infectious and parasitic diseases (20.79 - 7.00%).

Of the 270 medical diagnoses recorded for leaves of absence, 62(23.33%) were included on the List of Work-Related Diseases and 208(77.03%) were not. Table 2 presents the results regarding workers’ illnesses and their relation with the occupational risks reported by the psychiatric hospital workers.

Fisher’s test resulted in a statistically significant association between the variables medical leave of absence and chemical risks over the years of 2010 and 2011, p=0.03352 and p=0.008281, respectively. In 2010, a statistically significant association was found between the variables medical leave of absence and psychosocial risks, p=0.03161. In 2012, no associations among the studied variables were found.

Discussion

The limitations of our results include the study’s retrospective design, which does not allow the establishment of cause-and-effect relationships.

The results, however, identified new scientific knowledge that support the planning of health promotion actions, preventing factors that negatively affect health in the work place, especially in hospital institutions in the northeastern region of Brazil, where this theme is still underexplored.

The sociodemographic data illustrate the characteristics of the studied population. In this respect, it is important to highlight that 77.92% of subjects were between the ages of 40 and 59 years, which di-
verge from other studies, such as a study conducted in 22 mental health services in the state of Goiás, Brazil, which found that 66.4% of healthcare professionals were no older than 39 years old.\(^{(4)}\)

Regarding occupational characteristics, one positive finding was that 49.08% of the psychiatric hospital health professionals worked 30 hours per week, as reducing work hours has been a demand of Brazilian health professionals. On a national level, nursing professionals are waiting for the Senate Bill 2.295/2000 to be voted on, better known as \textit{PL 30 Horas} (30 hours bill), which would establish a maximum weekly workload of 30 hours for nurses, nursing technicians and nursing aides.\(^{(5)}\)

Considering the variables that influence health status, we found that 39.88% of workers carried out leisure activities routinely and 25.77% did not. This finding is worrisome, for leisure is considered a psychosocial necessity. It is a form of mitigating the harmful effects of unpleasant events, especially because of its socializing aspects, one of the fundamental factors to well-being and that contributes to health, especially mental health.\(^{(6)}\)

Most of the workers at the psychiatric hospital did not report abusive drinking. However, the study demonstrated that alcohol abuse was commonly mentioned by workers who reported using drinking as a way to relax and relieve the tension experienced at work, marked by pressure from superiors, risks, high level of attention and/or responsibility.\(^{(7)}\)

The analysis of the identified occupational risks according to work place indicate that subjects from different work places reported being exposed to similar risk agents. Among these, the most common physical risk in all units was noise; among biological risks, bacteria; chemical risks, tobacco smoke; ergonomic risks, inadequate body posture; and stress and physical assault (violence) among psychosocial risks.

In a study conducted with nursing technicians and aides in a psychiatric hospital, researchers found that these professionals were exposed to objects such as knives and pieces of wood that could be used by patients in physical assaults.\(^{(8)}\) However, in general, physical assaults are expressed with kicking, punching, slapping and strangulation attempts.

In some psychiatric units, the rates of violence against workers surpass the figure of 100 cases per 100 workers a year.\(^{(9)}\) A study conducted with fo-

### Table 2. Mental health workers’ leaves of absence from 2010 to 2012, by presence or absence on the List of Work-Related Diseases, types of occupational risks and year of occurrence\(n_{2010}=61; n_{2011}=56; n_{2012}=65\)

<table>
<thead>
<tr>
<th>Risks</th>
<th>Year of leave of absence</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On the list</td>
<td>Not on the list</td>
<td>Total</td>
<td>On the list</td>
</tr>
<tr>
<td>Occupational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14(23.9)</td>
<td>33(54.1)</td>
<td>47(77.0)</td>
<td>12(21.4)</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>1(1.6)</td>
<td>1(1.6)</td>
<td>-</td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13(21.3)</td>
<td>30(49.2)</td>
<td>43(70.5)</td>
<td>11(19.6)</td>
</tr>
<tr>
<td>No</td>
<td>1(1.6)</td>
<td>4(6.6)</td>
<td>5(8.2)</td>
<td>1(1.8)</td>
</tr>
<tr>
<td>Biological</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13(21.3)</td>
<td>30(49.2)</td>
<td>43(70.5)</td>
<td>11(19.6)</td>
</tr>
<tr>
<td>No</td>
<td>1(1.6)</td>
<td>4(6.6)</td>
<td>5(8.2)</td>
<td>1(1.8)</td>
</tr>
<tr>
<td>Chemical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14(23.9)</td>
<td>25(41.0)</td>
<td>39(63.9)</td>
<td>8(14.3)</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>9(14.7)</td>
<td>9(14.7)</td>
<td>4(7.1)</td>
</tr>
<tr>
<td>Ergonomic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10(16.4)</td>
<td>29(47.5)</td>
<td>39(63.9)</td>
<td>9(16.1)</td>
</tr>
<tr>
<td>No</td>
<td>4(6.6)</td>
<td>5(8.2)</td>
<td>9(14.7)</td>
<td>3(5.4)</td>
</tr>
<tr>
<td>Psychosocial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9(14.8)</td>
<td>28(45.9)</td>
<td>37(60.7)</td>
<td>8(14.3)</td>
</tr>
<tr>
<td>No</td>
<td>5(8.2)</td>
<td>6(9.8)</td>
<td>11(18.0)</td>
<td>4(7.1)</td>
</tr>
</tbody>
</table>

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\(^{(4)}\) regarding occupational characteristics, one positive finding was that 49.08% of the psychiatric hospital health professionals worked 30 hours per week, as reducing work hours has been a demand of Brazilian health professionals. On a national level, nursing professionals are waiting for the Senate Bill 2.295/2000 to be voted on, better known as \textit{PL 30 Horas} (30 hours bill), which would establish a maximum weekly workload of 30 hours for nurses, nursing technicians and nursing aides.\(^{(5)}\)

Considering the variables that influence health status, we found that 39.88% of workers carried out leisure activities routinely and 25.77% did not. This finding is worrisome, for leisure is considered a psychosocial necessity. It is a form of mitigating the harmful effects of unpleasant events, especially because of its socializing aspects, one of the fundamental factors to well-being and that contributes to health, especially mental health.\(^{(6)}\)

Most of the workers at the psychiatric hospital did not report abusive drinking. However, the study demonstrated that alcohol abuse was commonly mentioned by workers who reported using drinking as a way to relax and relieve the tension experienced at work, marked by pressure from superiors, risks, high level of attention and/or responsibility.\(^{(7)}\)

The analysis of the identified occupational risks according to work place indicate that subjects from different work places reported being exposed to similar risk agents. Among these, the most common physical risk in all units was noise; among biological risks, bacteria; chemical risks, tobacco smoke; ergonomic risks, inadequate body posture; and stress and physical assault (violence) among psychosocial risks.

In a study conducted with nursing technicians and aides in a psychiatric hospital, researchers found that these professionals were exposed to objects such as knives and pieces of wood that could be used by patients in physical assaults.\(^{(8)}\) However, in general, physical assaults are expressed with kicking, punching, slapping and strangulation attempts.

In some psychiatric units, the rates of violence against workers surpass the figure of 100 cases per 100 workers a year.\(^{(9)}\) A study conducted with fo-
Fernandes MA, Marzialle MH

rensic psychiatric nurses in England and Wales examined the impact of violence at work on workers’ mental health and found that individuals who had experienced a high level of stress adopted palliative behaviors such as alcohol use.\(^\text{(10)}\)

In the case of hospital workers, biological risks are mainly represented by infections caused by bacteria, viruses, chlamydiae, fungi and parasites such as protozoa, helminthes and arthropods.\(^\text{(11)}\) In psychiatric institutions, workers are frequently exposed to risks while administering injectable drugs or manipulating sharp instruments. In addition, special mention goes to the risks of infection due to parasites and contact with human bodily secretions, since by caring for patients with mental illness who are also infested with lice and/or scabies health workers consequently expose themselves to the risk of infestation.\(^\text{(12)}\)

Other biological agents identified by all twelve categories of workers in the psychiatric hospital were parasites and protozoa. The presence of felines, rodents and plants as potential risk agents to worker and patient health were also mentioned.

The use of tobacco by patients was mentioned as an important chemical risk factor, in addition to manipulating chemical substances such as medications, sterilization and cleaning solutions.

The most commonly mentioned physical agent was noise 67.67% coming from patients with mental illness, as altered speech is common in most psychopathologies, especially logorrhea, echolalia, increased flow, coprolalia and tachylalia.

Considering ergonomic risks, inadequate body posture, monotonous/repetitive tasks and physical effort exerted when performing routine activities were all factors mentioned by most workers. Their work activities were considered both repetitive and unpredictable: repetitive due to their routine nature and unpredictable due to unexpected behavioral changes of some psychiatric patients.

Stressful situations were the only psychosocial risk factor identified by workers across all professional categories. In this sense, work-related stress is cause for concern due to its consequences for workers’ health. Cases of psychological harassment, intimidation, moral and sexual harassment and other forms of violence are increasingly present in work environments. In an attempt to deal with such stress, professionals may resort to unhealthy behaviors, such as alcohol and drug abuse. Researchers have identified a relationship between stress and diseases of the musculoskeletal, cardiac and digestive systems. The economic crisis and recession have also led to an increase in work-related stress, anxiety, depression and other mental disorders, even causing some people to go to the extreme of committing suicide.\(^\text{(1)}\)

A study states that health institutions present a complex context, as their work environments are permeated with a diversity of tense inter-relations, in which several different subjects participate, among them managers, workers and users, with differing, heterogeneous and conflicting needs. These situations lead to satisfaction and/or dissatisfaction, due to the conflict resulting from the fact that the institution’s interests are not always in consonance with those of its workers.\(^\text{(13)}\)

Dissatisfaction with and lack of enthusiasm for one’s work generate unease, which coupled with tiredness and fatigue constitute important factors that lead to psychological distress among psychiatric hospital workers. Work satisfaction is an important protective factor regarding work-related mental illness. Thus, when a situation is unfavorable, mental disorders may occur.\(^\text{(8)}\)

A study conducted with mental health workers in a psychosocial care center in Fortaleza, Ceará, Brazil, found that direct contact with users led to work satisfaction, whereas work conditions and low wages were reasons for dissatisfaction. Dissatisfaction with work had several effects on these individuals’ organizational life, as well as on their physical and mental health.\(^\text{(14)}\)

Regarding health problems obtained in this documentary research, 297 records of medical leaves of absence between 2010-2012 were found, which involved 64.41% of the psychiatric hospital’s health professionals and resulted in 4,671 days of absences (working days lost). These results are worrisome, for more than half of the workers were ill during this...
three-year period, resulting in losses for workers, institution and patients.

In 2008, the number of cases of social security benefits that were conceded in Brazil due to work disability lasting longer than two weeks, and which were the consequence of work-related mental and behavioral disorders, surpassed 12 thousand.(15)

Of the 270 medical diagnoses recorded for leaves of absence during the analyzed three-year period, 62 (23.33%) were on the List of Work-Related Diseases published by the Brazilian Ministry of Health and 208 (77.03%) were not.

Although our analyses found statistically significant associations between psychiatric hospital workers’ health and chemical or psychosocial risks, it is important to state that establishing causal relationships between work and disease is complex. This is especially true when considering psychological and emotional illness, such as depression.

**Conclusion**

Psychiatric hospital health workers across all professional categories recognized and identified occupational risks to which they are exposed, as well as the possibility of becoming ill. More than half of mental health workers presented health problems; however, only a small portion of diagnoses were included on the list of occupational diseases. There were statistically significant associations between the variables disease and chemical risks and disease and psychosocial risks.

**Acknowledgements**

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**Collaborations**

Fernandes MA and Marziale MHP declare that they contributed to the project conception, data analysis and interpretation, drafting of the article, critical review of its important intellectual content and approval of the final version to be published.

**References**


The access and the difficulty in resoluteness of the child care in primary health care

O acesso e a dificuldade na resolutividade do cuidado da criança na atenção primária à saúde

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Keywords
Primary health care; Child care; Health services accessibility; Nursing care; Pediatric nursing

Descritores
Atenção primária à saúde; Cuidado da criança; Acesso aos serviços de saúde; Cuidados de enfermagem; Enfermagem pediátrica

Abstract
Objective: To learn how access is conducted in two primary care units, traditional and family health strategy, and assess whether there was resoluteness of assistance to child health.

Methods: This is a qualitative study, we used hermeneutic for understanding the data. The research instrument was non-participant observation technique; the data were analyzed using thematic analysis method.

Results: There are four sub-categories: children, their family members and the first contact in primary care; the service organization and its influence on access; the therapeutic itinerary of the family and child in search of health care; scheduled access to health care.

Conclusion: Access to health services showed weaknesses regarding the child health care and the proposed care service could build stable relationships and humanized care to child demand in primary health care.

Resumo
Objetivo: Aprender o acesso em duas unidades de atenção primária, tradicional e saúde da família e avaliar se houve resolutividade da assistência a saúde da criança.

Métodos: Trata-se de pesquisa qualitativa, utilizou-se a hermenêutica para compreensão dos dados. O instrumento de pesquisa a técnica de observação não participante, os dados foram analisados pelo método da análise temática.

Resultados: Estão apresentados em quatro sub-categorias: a criança, seus familiares e o primeiro contato na atenção primária; organização do serviço e sua influência no acesso; o itinerário terapêutico da família e sua criança em busca de cuidado em saúde; o acesso à atenção programada em saúde.

Conclusão: O acesso aos serviços de saúde apresentou fragilidades quanto ao cuidado à saúde da criança e que a proposta do acolhimento pode construir relações estáveis e cuidado humanizado à demanda infantil na atenção primária à saúde.

Keywords
Primary health care; Child care; Health services accessibility; Nursing care; Pediatric nursing

Descritores
Atenção primária à saúde; Cuidado da criança; Acesso aos serviços de saúde; Cuidados de enfermagem; Enfermagem pediátrica

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Introduction

The care provided to children in Primary Health Care aims to promote health through priority actions of surveillance and monitoring of growth and child development. It is necessary to establish conditions for the provision of this care, strengthening the team through the provision of resources and subsidies to health teams, autonomy and accountability to users, so that the health work reach its purpose, which is solving the health needs of the child and family.\(^1\)

One of the requirements necessary to effective care is individuals’ access to health services. Access of first contact is one of the essential attributes of primary health care and denotes the accessibility and use of these services in case of problems in which people seek health care.\(^2\)

It can be said that an accessible service that is easy to approach, available to people in which there is no geographical, managerial, financial, cultural or communication barriers, enabling individuals to receive care, and that is resolute, ie, the problem is solved there or in another level of care, in the first contact with the health service.\(^3\)

In this perspective, the study aimed to learn the access in two units of primary health care, one traditional and another with family health strategy, with different work processes and assess whether there was resoluteness in the health care of children in this context, the two models used in Brazil.

Methods

This is a descriptive qualitative study whose theoretical and methodological framework for data interpretation was the hermeneutic.\(^4,6\)

Data collection was conducted in two primary care services that have primary care models distinct from one another. The study subjects were all professionals working in these two units.

For data collection, we used the technique of non-participant observation, with previously established script and for the observation record’s a field diary was used. The period of data collection was two months and ended due to saturation of information observed, providing the researcher enough information to respond the research question.

The information collected from the field diary from the observation were ordered, organized, categorized, contextualized and interpreted by the method of thematic analysis.\(^7\)

In pre-analysis, we established the first contact with the material, identifying the units of meaning, then explored through units of representative parts of the texts of the field diary and finally the data were grouped and interpreted allowing the construction of a category that explained access to services in the health units investigated.

The development of the study met national and international standards of ethics in research involving human subjects.

Results

We chose to present the data in box format in which we can observe the systematic category: “The influence of the work process in access and resoluteness of the primary health care of children” with their sub-categories and the related reports of observation in each unit of analysis, according to chart 1.

Discussion

We understand the results as inserted in the observed reality, which is a limitation of qualitative method. Therefore, these results should not be generalized. Thus, we analyzed the information collected and systematized earlier around the difficulty of access to childcare in primary health care.

We highlight that the performance in primary health care is a fertile field of nursing work, looking at the data can reflect on their way to take care of children in the context of primary care and change their practice to expand access and improve the resoluteness for children and their families, this is the practical application of the study.

Regarding access to health services, we found that the reception is the first place for seeking in-
formation for users, which seeks care. In this place, patients are oriented according to their needs, questions or complaints.

The reception of both units, regardless of the care model adopted, whether traditional or family health strategy acted as a barrier and filtered users. The indication would be to change this moment, establishing a bond, in qualified listening, good care practices in order to ensure a humane, effective care, legitimizing this level of care as a preferential entrance to network of health care. (8)

These characteristics denote a care in child health, involving mothers and the family integrally. It assumes the adoption of an expanded concept of health, in which they are engaged in biological, psychosocial, cultural and subjective needs. In order to be effective, it is essential the interdisciplinary action of interdisciplinary teams of health, with longitudinal coordinates actions of multiple professionals. (9)

One way of interdisciplinary approach is to invest in the care, which can be developed through two dimensions: attitudinal, toward humane care, with qualified hearing of health problems, involving a positive response to the demands and the creation of bonds between the health team and the enrolled population. The other is organized to establish flows, references and count references, territorialization, overcoming the constraints or negative responses such as lack of forms and the establishment of an adequate initial assessment process. (10)

In other words, the reception is no longer a place of power, capable of deciding about the user access or not.

This tool can be implemented through the establishment of dialogue and can provide solutions to present difficulties, forming a mixture of technical knowledge with popular knowledge. In this perspective, knowledge sharing can occur since the health worker present sensitivity to listen, understand the health needs and thus integrate them with technical knowledge, providing the user a better care at the clinic. (11)

We observed the existence of problems in the organization of work, in which many workers left their specific functions to do their work at different sectors of their competence, supplying a shortage of workers. Moreover, the excess of work and site conditions become hindering factors for the worker to develop their work in caring and humane manner with a view to solve the health problems of children.

Study with receptionist workers of a basic health unit described the work as fragmented, in which the focus of his/her work were addressed based on procedures offered, the health needs facing a biological view of the health-disease process, hard and soft-hard technologies. The purpose of this study proved to work as charity or undetermined, unknown to the worker. (12)

Another study that evaluated access to family health strategy in the view of users, obtained similar result, where users reported delay in consultations, helping to reduce the credibility of the
family health strategy, and thus hindering access, reinforcing disbelief in the health service provided by the public sector.\(^{13}\)

This finding is also similar with the study cited, among other similar results, the (de)humanization of care, demonstrated by the presence of people at dawn waiting for being cared.\(^{14}\)

Thus, instead of adopting the practice of risk classification, with the choice of an appropriate methodology for this, one of the units adopts the conduct called assessment. This practice should not be taken as care, since this is a device with the principle of managing new ways of doing care in any space and time to work with the use of conversation technology providing sensitive listening, ensuring universal access and giving a positive response with agility to services and users.\(^{15}\)

This perspective could be present in a more expressive and consolidated family health strategy teams studied, however, the observed results showed no differences in the organization of services in the access of family health strategy at the traditional basic health unit. On the contrary, showed to offer better access and resolution of cases, compared to the family health strategy unit, who through “forms” and “assessments”, turned out to distance from principles that characterize as the preferred strategy for promoting health of the population.

Family Health is a strategy to actions to promote health through the empowerment of individuals and families for their care, since to be responsible for the health of the territory’s population, teams should extend the curative/preventive practice, seeking to promote quality of life, which corresponds to one of the main foundations of the changing healthcare model.\(^{16}\)

However, adopting only the family health strategy as practice without actually changing the model of care makes service users deviate, because the population is unaware and “lost”, they do not know which service trust to clarify their health needs.

One of the actions of the family health strategy is scheduled care, which describes itself as the clinical encounter initiated by the health professional who focuses on aspects of care that are not considered an acute condition or an exacerbation of chronic condition. This encounter becomes the basis of a care plan drawn up, reviewed and agreed upon the health team and the users.\(^{10}\)

In the observations, it was possible to detect that type of childcare for nurses in both units, the puerperal consultation associated with the first visit of a newborn with the team of physicians and the team of dentistry’s from the family health strategy with oral health prevention for pregnant women and children up to three years.

Regarding access to these services, it was observed that changes in the form of scheduling occurred with childcare group of newborn at high risk coming from the neonatal intensive care unit, where learned by the nurse, the difficulty of scheduling and caring for this priority, which lacks meticulous care.

These findings complement the study of the care of preterm and low birth weight, discharged from neonatal intensive care unit, where families described their journey in health services in search of continued health care for their child after hospital discharge. Mothers are expressed that this itinerary is marked by barriers to access, fragile bond and institutional vulnerability of health services, generating insecurity, dissatisfaction and non-effectiveness in child monitoring.\(^{17}\)

It was possible to observe that most of the care provided to children is through medical consultations, where access to care in child health is prioritized in acute situations of disease, ie, the focus of that care ends up being the disease, complaints and intervention for their healing, which indicates a physician-centered healthcare, which overestimates the biological aspects of individuals and soft-hard and hard technologies instruments use for care,\(^{1}\) which ultimately do not reach the health needs of the child integrality.

Regarding health needs, study conducted based on perception of users, found that these needs are linked to production and social reproduction and accessibility to health actions and the related bond needs for autonomy and self-care, concluding that the relationship confidence allows strengthening the potential for addressing the health-disease process.\(^{18}\)
Health care can become effective if care technologies be inverted, seeking to insert therapeutic projects in actions that transfer knowledge to the user, raise their self-esteem, making them able to incorporate experience in their unique therapeutic process, making it also subject of his/her health, having the opportunity to work with soft health technologies in a more relational process than instrumental, which means designing therapeutic projects focused on users’ needs and having him/her as the protagonist of their health process.\(^{(19)}\)

In this study there were no differences in programmatic care executed in the model of the family health strategy in contrast to the traditional health unit, both kept such care through weekly schedule. The largest portion of childcare was accomplished through spontaneous demand care, caused by the demand for care, cases of acute conditions of diseases and ailments, all resolvable within the primary health care.

**Conclusion**

Access to first contact demonstrated weaknesses concerning child in primary health care, it was evidenced the existence of organizational barriers, preventing or hindering access to care through imposed bureaucratically devices. Furthermore, it was noticed a fragmented and uncoordinated care in both primary care services, demonstrating that such services need to structuring and development of health care effectiveness for the child and his/her family.

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**Collaborations**  
Finkler AL contributed to the project design, analysis, data interpretation and writing of the paper. Viera CS collaborated with the project design, analysis, interpretation of data, drafting the paper and critical revision of the important intellectual content. Tacla MTGM cooperated with writing and critical revision of the important intellectual content and Tosó BRGO participated in the project design, analysis, interpretation of data, drafting the paper and critical revision of the important intellectual content.

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Quality of life in women with breast cancer undergoing chemotherapy

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Paulo César de Almeida²
Carolina Maria de Lima Carvalho³
Namie Okino Sawada⁴

Abstract

Objective: This study aimed to assess the health-related quality of life of women with breast cancer undergoing chemotherapy.

Methods: A cross-sectional study carried out in a specialized institution, comprising 145 women. Two standardized questionnaires for health-related quality translated and validated for the Portuguese language were used. The scores manual of the EORTC was used to calculate the domain scores of the questionnaires.

Results: According to the first questionnaire, the emotional function was the most affected. The treatment causes financial difficulties for most patients (mean = 41.83). The symptoms with the highest scores were Insomnia (37.93), Fatigue (36.01) and Loss of Appetite (33.56). According to the Quality of Life Questionnaire – Breast Cancer 23, the mean score for Side effects was 50.07, meaning that many women experience side effects of chemotherapy, and impaired sexual satisfaction.

Conclusion: Women with breast cancer showed changes in the following domains: financial, emotional, sexual satisfaction and future prospects. The most frequently mentioned symptoms were fatigue, insomnia and loss of appetite.

Keywords
Breast neoplasms/drug therapy; Quality of life; Oncology nursing; Woman health

Resumo

Objetivo: Conhecer a qualidade de vida relacionada à saúde de mulheres com câncer de mama em tratamento quimioterápico.


Resultados: Segundo o primeiro questionário, a função mais afetada foi a emocional. O tratamento provoca dificuldade financeira na maioria das pacientes (média = 41,83). Os sintomas com os maiores escores foram Insônia (37,93), Fadiga (36,01) e Perda de apetite (33,56). Segundo o instrumento Quality of Life Questionnaire – Breast Cancer 23, o escore Efeitos Colaterais teve média de 50,07, significando que muitas mulheres apresentam efeitos colaterais da quimioterapia e satisfação sexual prejudicada.

Conclusão: Mulheres com câncer de mama apresentaram alterações nos domínios emocional, financeiro, de satisfação sexual e nas perspectivas futuras. Os sintomas mais mencionados foram fadiga, insônia e perda de apetite.

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Conflicts of interest: no conflicts of interest to declare.
Introduction

Breast cancer is a major public health problem because of its high incidence and mortality. This neoplasm is probably the most feared by women, especially by the negative stigma brought by its diagnosis\(^1\) and due to its psychological effects, which affect the perception of sexuality and their own personal image.

This disorder has good options of treatment that enable patients to extend their lives. The choice depends on the stage of the disease, the tumor type and the general health of the patient. Among the procedures, chemotherapy is defined as the treatment using chemotherapeutic drugs to destroy the cells that comprise the tumor. Such drugs are mixed with the blood and carried to all parts of the body, thereby destroying the sick cells that form the tumor, preventing them from spreading throughout the body.\(^2\)

There was a significant improvement in life expectancy of women with that disease because of the possibility of early diagnosis and the evolution of treatment methods. Thus, more researchers have been concerned about investigating the needs of survivors of breast cancer, aiming at a more global attention to the female group.\(^3\)

Recent models of definitions and concepts of Quality of Life related to health are being applied to cancer patients. Validated instruments are used to measure and explore effects and symptoms of the disease, as well as to evaluate the Quality of Life after treatment. Currently, several specific instruments to measure the impact of disease on Quality of Life are called ‘instruments of Quality of Life related to health’.\(^4,5\)

The aim of this study was to evaluate the health-related quality of life of women with breast cancer undergoing chemotherapy.

Methods

This is a cross-sectional study carried out in institutions specialized in the treatment of various types of neoplasms, in the city of Fortaleza, state of Ceará, northeastern region of Brazil.

The study included a convenience sample of 145 women with breast cancer, who were undergoing chemotherapy in the period between April and July 2012, with the following inclusion criteria: age greater or equal to 18 years, diagnosed with breast cancer at any stage of disease, being on chemotherapy from the second cycle, following the mentioned months of the cycle, and being present every day of the week.

The following instruments were used: socio-demographic and clinical form; European Organization for Research and Treatment of Cancer 30-Item Quality of Life Questionnaire (EORTC QLQ-C30), version 3.0, in Portuguese; and Quality of Life Questionnaire Breast Cancer − 23 (QLQ-BR23). The EORTC QLQ-C30 and the QLQ-BR23 are questionnaires of Quality of Life related to health, translated and validated in Portuguese; the use of both questionnaires is authorized by the European Organization for Research and Treatment of Cancer (EORTC).\(^6\)

The Statistical Package for the Social Sciences (SPSS), version 20.0 was used for data analysis. The scores manual of the EORTC was used to calculate the domain scores of the questionnaires. All mean scores were transformed linearly into a scale from zero to one hundred points, as described in the manual, where zero represents the worst health status and one hundred the best state of health - except for the symptom scale, in which the higher score represents more symptoms and the worst quality of life. Thus, a high score in the functional scale meant a healthy functional level, while a high score in the symptom scale represented a high level of symptoms and side effects.

Demographic data were evaluated by descriptive analysis of the variables selected for the characterization of sample. A descriptive statistical analysis of sociodemographic, clinical and therapeutic data of the EORTC QLQ-C30 and the QLQ-BR23 was done through calculation of mean, standard deviation and Pearson's correlation coefficient.

The development of the study met national and international standards of ethics in research involving human beings.
Results

The sample consisted of 145 women who were in neoadjuvant and adjuvant chemotherapy for breast cancer.

Table 1 refers to the sociodemographic characteristics of the studied women.

Table 1. Sociodemographic data of patients

<table>
<thead>
<tr>
<th>Variables</th>
<th>n(%)</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range, years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 35</td>
<td>8(5.5)</td>
<td></td>
</tr>
<tr>
<td>36-45</td>
<td>37(25.5)</td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td>42(29.0)</td>
<td></td>
</tr>
<tr>
<td>56-65</td>
<td>46(31.7)</td>
<td></td>
</tr>
<tr>
<td>66-82</td>
<td>12(8.3)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without partner</td>
<td>63(43.4)</td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>82(56.6)</td>
<td></td>
</tr>
<tr>
<td>Income, minimum wage*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 1</td>
<td>83(57.2)</td>
<td>2.14±3.63</td>
</tr>
<tr>
<td>1-2</td>
<td>25(17.2)</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>17(11.7)</td>
<td></td>
</tr>
<tr>
<td>5-40</td>
<td>20(13.8)</td>
<td></td>
</tr>
<tr>
<td>Origin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>54(37.2)</td>
<td></td>
</tr>
<tr>
<td>Interior</td>
<td>89(62.8)</td>
<td></td>
</tr>
<tr>
<td>Years of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>38(26.2)</td>
<td>2.23±0.98</td>
</tr>
<tr>
<td>5-8</td>
<td>50(34.5)</td>
<td></td>
</tr>
<tr>
<td>9-11</td>
<td>43(29.7)</td>
<td></td>
</tr>
<tr>
<td>12+ more</td>
<td>14(9.7)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Regional Center of Chemotherapy and Santa Casa de Misericórdia, Fortaleza (CE), 2012. *The minimum wage at the time of research was R$ 622.00; SD - Standard Deviation

The average age in the studied group was 52±11 years, ranging between 29 and 82 years. In relation to marital status, 82 women (56.6%) had a partner, i.e., were married or living in a stable union. Regarding the monthly income, 81 women (55.9%) received at least a minimum wage; 25 (17.2%) patients received between one and two minimum wages and were in treatment by the Unified Health System; 20 (13.8%) patients had monthly income above five minimum wages and in treatment with the health insurance plan.

Regarding the origin of patients, 86 (59.3%) of them were from the interior of the state; 54 women were from the capital (37.2%) and three from other different states (3.5%).

With respect to the years of study, 38 women (26.2%) had 1-4 years of study and 50 women (34.5%) had 5-8 years of study, equivalent to uncompleted and complete primary education. In addition, 43 (29.7%) women at least started high school and studied 9-11 years. Only 14 women (9.7%) started or finished college.

Table 2 shows the clinical data, such as combined therapy, chemotherapy regimens and treatment time, its absolute values, percentage, mean and the standard deviation of each variable.

Table 2. Clinical characteristics

<table>
<thead>
<tr>
<th>Clinical characteristics</th>
<th>n(%)</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined treatment (n=145)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>63(43.4)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82(56.6)</td>
<td></td>
</tr>
<tr>
<td>Chemotherapy regimens (n=145)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAC (docetaxel+doxorubicin+cyclophosphamide)</td>
<td>54(37.2)</td>
<td></td>
</tr>
<tr>
<td>AC (adriblastina + cyclophosphamide)</td>
<td>18(12.4)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>73(50.3)</td>
<td></td>
</tr>
<tr>
<td>Time of treatment (n=142), months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 6</td>
<td>99(68.3)</td>
<td>5.61±6.97</td>
</tr>
<tr>
<td>&gt; 6</td>
<td>46(31.7)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Regional Center of Chemotherapy and Santa Casa de Misericórdia, Fortaleza (CE), 2012. SD - Standard Deviation

Regarding clinical data, 63 patients (43.4%) had not undergone any other treatment, therefore, the event consisted in a neoadjuvant chemotherapy. Eighty-two (56.6%) other women had undergone other treatments prior to chemotherapy (surgery or radiotherapy).

The most frequently used schemes were TAC (docetaxel + doxorubicin + cyclophosphamide) in 54 women (37.2%) and AC (adriblastina + cyclophosphamide) in 18 women (12.4%). The predominant treatment time in the studied sample was <6 months in 99 women.

Table 3 shows the descriptive data (mean and standard deviation) relating to the results obtained in the EORTC QLQ-C30 and QLQ-BR23 scales.

It is noteworthy that the score of the Global Quality of Life (76.14) is nearer to one hundred, which is considered reasonable or satisfactory by women.
Table 3. Mean and standard deviation of the items of functions and symptoms of the questionnaires: European Organization for Research and Treatment of Cancer 30-Item Quality of Life Questionnaire (EORTC QLQ-C30) and Quality of Life Questionnaire Breast Cancer - 23 (QLQ-BR23)

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions*</td>
<td></td>
</tr>
<tr>
<td>Physical (n=145)</td>
<td>70.39±25.04</td>
</tr>
<tr>
<td>Role performance (n=145)</td>
<td>64.13±34.43</td>
</tr>
<tr>
<td>Cognitive (n=145)</td>
<td>73.33±27.94</td>
</tr>
<tr>
<td>Emotional (n=145)</td>
<td>61.32±20.01</td>
</tr>
<tr>
<td>Social (n=145)</td>
<td>76.89±28.06</td>
</tr>
<tr>
<td>Body image (n=145)</td>
<td>73.79±31.91</td>
</tr>
<tr>
<td>Sexual (n=145)</td>
<td>72.41±34.54</td>
</tr>
<tr>
<td>Sexual satisfaction (n=66)</td>
<td>50.50±34.21</td>
</tr>
<tr>
<td>Future perspectives (n=145)</td>
<td>46.20±42.34</td>
</tr>
<tr>
<td>Symptom*****</td>
<td></td>
</tr>
<tr>
<td>Fatigue (n=145)</td>
<td>36.01±27.38</td>
</tr>
<tr>
<td>Pain (n=145)</td>
<td>28.39±32.87</td>
</tr>
<tr>
<td>Nausea and vomiting (n=145)</td>
<td>28.62±20.89</td>
</tr>
<tr>
<td>Dyspnea (n=145)</td>
<td>10.34±23.41</td>
</tr>
<tr>
<td>Insomnia (n=145)</td>
<td>37.93±43.32</td>
</tr>
<tr>
<td>Loss of appetite (n=145)</td>
<td>33.56±38.98</td>
</tr>
<tr>
<td>Constipation (n=145)</td>
<td>29.88±37.21</td>
</tr>
<tr>
<td>Diarrhea (n=145)</td>
<td>20.68±32.41</td>
</tr>
<tr>
<td>Financial difficulty (n=145)</td>
<td>41.83±40.59</td>
</tr>
<tr>
<td>Side effects (n=144)</td>
<td>50.07±21.22</td>
</tr>
<tr>
<td>Symptoms related to the arm (n=145)</td>
<td>22.06±23.27</td>
</tr>
<tr>
<td>Symptoms related to the breast (n=145)</td>
<td>22.47±17.76</td>
</tr>
<tr>
<td>Hair loss (n=130)</td>
<td>37.43±44.12</td>
</tr>
<tr>
<td>Overall quality of health (n=145)</td>
<td>76.14±23.54</td>
</tr>
</tbody>
</table>

Source: Public Institutions Fortaleza (CE), Brazil, 2012.

*The closer to one hundred, the better the Global Quality of Life; **The closer to one hundred, the worse the Global Quality of Life; SD - Standard Deviation

With regard to the functions according to the EORTC QLQ-C30 scale, scores were high in the following items: Physical Function (70.39), Role performance (64.13), Cognitive Function (73.33) and Social Function (76.89), indicating a level between regular and satisfactory. Most patients showed no confinement in bed, did not need help with bathing, dressing, eating, were not prevented from doing leisure activities, presented no difficulty with concentrating and/or remembering information, and also the physical condition and the treatment did not interfere in family life and social activities. The lowest score was the Emotional Function (average 61.32), indicating feelings of slight tension, anger, depression or worry.

In the symptom scale, the highest scores were Insomnia (37.93), Fatigue (36.01) and Loss of Appetite (33.56). Thus, part of the women had some (albeit little) difficulty with sleeping, fatigue, appetite loss.

The result of this research showed the mean value of the low score for symptoms of Pain (28.39), Nausea and Vomiting (28.62), Dyspnea (10.34), Diarrhea (20.68) and Constipation (29.88). This may mean that these symptoms had little interference in daily activities.

In this sample, the physical condition and the treatment caused some financial difficulties (average 41.83).

Regarding the subscales of the QLQ-BR23 instrument, the result shows 50.07 as the score for Side effects, meaning that many women experience side effects of chemotherapy. The most affected scores were Hair Loss (37.43), Arm Symptoms (22.06) and Breast Symptoms (22.47). The high score on Body Image (73.79) means that there was good acceptance of this feature. The high score for Sexual Function (72.41), on its turn, revealed that the practice of sexual intercourse continues for most patients, however, the Sexual Satisfaction (average 50.50) was unsatisfactory or impaired. In relation to the concern about future, the mean was 46.20.

**Discussion**

The limitations of the results of this study are related to the cross-sectional design that does not allow establishing relations of cause and effect.

The patients with breast cancer receiving chemotherapy showed considerable changes in the Global Quality of Life and its various dimensions. The women in this study considered their state of health and the quality of life as satisfactory, which was evidenced by the score of the Global Quality of Life (76.14).
The EORTC QLQ-C30 scores were high for Physical Function (70.39), Role performance (64.13), Cognitive Function (73.33) and Social Function (76.89), indicating a level between satisfactory and regular of these functions. In contrast, women who received chemotherapy showed a significant decrease in physical, social and cognitive function between the beginning and end of treatment (six complete cycles of chemotherapy). The results may provide support for planning the nursing care for women undergoing chemotherapy.\(^{(7-10)}\)

The score of the Emotional Function (mean 61.32) was considered the lowest among the functions of the first scale. It was observed that psychological distress in patients with breast cancer is related to depression, anxiety and low emotional function, and also to decreased quality of life, especially in the emotional function and mental health.\(^{(11)}\)

It was identified that the magnitude of change in psychological anguish has a significant impact on the physical and functional state, but not in the social condition of Quality of Life. The anguish is more closely related to symptoms, treatment factors or loss of skills than to family or social relationships.\(^{(12-15)}\)

The most affected symptoms on the scale of symptoms were Insomnia (37.93), Fatigue (36.01) and Loss of Appetite (33.56). It is common to have increased fatigue and loss of appetite in women with breast cancer at this stage.\(^{(8)}\) With respect to items of the QLQ-BR23 instrument, the result showed a mean score of 50.07 for Side Effects, in other words, many women had side effects of chemotherapy.

Among the physical effects of chemotherapy, Fatigue was the most prevalent symptom reported and source of high stress for patients. This symptom was accompanied by complaints of lack of energy, exhaustion, loss of interest in previously pleasurable activities, weakness, dyspnea, pain, changes in taste, rash, sluggishness, irritability and loss of concentration.\(^{(16,17)}\)

The physical condition and the treatment caused some financial difficulty (mean 41.83) in most patients. During treatment, the patient experiences physical and financial losses, and adverse symptoms such as depression and decreased self-esteem, requiring constant adjustments to the sociological, social, family, physical and emotional changes. In addition, limitations may occur in activities of daily life and biopsychosocial changes that may also interfere with quality of life, such as job loss.\(^{(18-20)}\)

The score of Sexual Satisfaction has a mean of 50.50, showing there was relative dissatisfaction in the quality of the relationship. In young patients, the interruption or dissatisfaction with sex life was related to a poor quality of life, to chemotherapy, total mastectomy and difficulties with partner, with respect to sexual relations. Researches suggests that problems with sexual functioning are common in women with breast cancer undergoing chemotherapy.\(^{(11,21,22)}\)

Studies on the quality of life related to health encompass both clinical morbidity caused directly by the disease state, as the influences of disease and treatments on daily activities and satisfaction with life. Intervention strategies can be formulated by evaluating aspects of quality of life related to health, in order to minimize the effects of the disease of progressive character, and improve aspects of quality of life.\(^{(20)}\)

**Conclusion**

Women with breast cancer showed changes in the following domains: financial, emotional, sexual satisfaction and future prospects. The most frequently mentioned symptoms were fatigue, insomnia, and loss of appetite.

**Acknowledgements**

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**Collaborations**

Lôbo AS and Fernandes AFC contributed to the project design, analysis and interpretation of data, drafting the article and final approval of the version to be published. Brilhante AF contributed to the data collection. Almeida PC collaborated with the
analysis and interpretation of data and final approval of the version to be published. Carvalho CML and Sawada NO collaborated in writing the article and final approval of the version to be published.

References


Factors associated with indicators of health needs of adult men
Fatores associados aos indicadores de necessidades em saúde de homens adultos

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Aurea Christina de Paula Corrêa²
Sonia Silva Marcon¹

Abstract
Objective: To identify associated factors as indicators of health needs of adult men.
Methods: Cross-sectional study, type of population-based household survey, conducted with 421 men aged between 20 and 59 years selected at random and systematic way. The research instrument was structured in a form based on the variables of study. For the analysis, we used multiple logistic regression models.
Results: Unemployed men, aged between 30 and 39 years and with lower levels of education reported a greater proportion of self-perceived health as fair/poor, being economic class, an important variable, adjusted for the multiple model. Retired men or on sick leave, aged between 40 and 49 years old and white, had higher frequency of morbidity.
Conclusion: The age group and occupational status were associated with self-perceived health and morbidity, the latter being also associated with skin color.

Keywords
Nursing in public health; Nursing in primary care; Men’s health; Needs and demands of health services; Adults

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Accepted
August 4, 2014

Resumo
Objetivo: Identificar fatores associados aos indicadores das necessidades em saúde de homens adultos.
Métodos: Estudo transversal, tipo inquérito domiciliar de base populacional, realizado junto a 421 homens com idade entre 20 e 59 anos selecionados de forma aleatória e sistemática. O instrumento de pesquisa foi um formulário estruturado com base nas variáveis de estudo. Para a análise utilizaram-se Modelos de Regressão Logística Múltipla.
Resultados: Homens desempregados, com idade entre 30 e 39 anos e com menores níveis de escolaridade referiram, em maior proporção, a autopercepção de saúde regular/ruim, sendo a classe econômica, uma variável importante, pois ajustou o modelo múltiplo. Homens aposentados ou em licença médica, com idade entre 40 e 49 anos e de cor branca, apresentaram maior frequência de morbidade.
Conclusão: A faixa etária e o status ocupacional estiveram associados à autopercepção da saúde e à morbidade referida, sendo esta última também associada à cor da pele.

Keywords
Enfermagem em saúde pública; Enfermagem em atenção primária; Saúde do homem; Necessidades e demandas de serviços de saúde; Adulto

Conflict of interest: there are no conflicts of interest to be declared.

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²Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso, Brazil.
Introduction

Health needs can be analyzed from different perspectives. Firstly, in an abstract nature, referring to the social and historical dimensions of each individual with regard to health needs; and secondly, other concrete and operative, dedicated to health care, in which the needs of the population drive policies and programs.\(^{(1)}\) Consistent with this second conception, it is worth highlighting the Andersen Behavioral Model of health needs, from two basic health indicators: the state of health of the individual (presence/absence of morbidity) and the perception of their own health as nearest determining demand for care and use of services.\(^{(2)}\)

This model, besides being the pioneer, has been the most used, aiming mainly to the understanding of the use of health services due to the needs approach.\(^{(3)}\) However, a systematic review of research conducted between 1998 and 2011 reveals that there are still few studies that focused on indicators of health needs.\(^{(4)}\) Thus, it is proposed here, the use of a piece of the above model, focusing the analysis of indicators among adult men.

Thus, it is important to distinguish between male and female needs, different possibilities coexist because of illness and health perceptions.\(^{(1)}\) Despite the unfavorable morbi-mortality profile to health condition, men still largely report less often than women having morbidity and poor health, even given the need for care, which compromise the health care of this population.\(^{(5)}\) We identified, however, a gap in knowledge, considering that studies have not investigated factors associated with indicators of health needs in the male population.

Although men recognize that they have health needs, they hesitate to seek care due to their own behavior or profile of services and health professionals.\(^{(6)}\) Furthermore, in a study conducted with health professionals, the authors reported that teams struggle to identify men health needs and to plan their actions. They also emphasize that the use of epidemiological data does not appear among the strategies addressed to identify the needs of this population.\(^{(6)}\)

Based on these assumptions, the objective of this epidemiological study was to identify associated factors to indicators of health needs in adult men.

Methods

This is a cross-sectional study, population-based and a household survey type, conducted with 421 men aged between 20 and 59 years, living in the city of Maringá, located in southern Brazil. For the sample size calculation, we used the base population count of men aged between 20 and 59 years, in 2010, which was 103 819 individuals,\(^{(7)}\) and the following parameters and estimates: 50% for the prevalence of the response variables among adult men, the associated estimation error of 5% and a 95% confidence interval to detect associations between the independent variables and the outcome. 10% (38 individuals) of the calculated minimum sample (383 individuals) was added, considering the possibility of errors in the completion of the data collection instruments.

For the selection of subjects, we used the technique of systematic random sampling, from the division of Maringá in 20 weighting areas that takes into account the socio-occupational similarities of individuals residing in the territory and which is adopted by Metropolis Observatory - Core Region Metropolitan of Maringa. With the number of men aged 20 to 59 years in the Weighting Areas, we conducted the proportional calculation, which we obtained the subsample to be collected in each weighting area. So, the streets visited were randomized, in which we respected the default interval for the selection of individuals: the fourth house on the right side of the street. The interviews took place at the homes of men, mostly during weekday mornings and afternoons between the months of January and July 2013.

For data collection, we used a structured instrument. The variables of interest were: self-perceived health and morbidity. The independent variables were socioeconomic and demographic: age, race, marital status, children, religion,
Factors associated with indicators of health needs of adult men

The data were compiled in Microsoft Excel 2010 software, with subsequent analysis in IBM SPSS 20 software. For data analysis, we performed univariate analysis using chi-square test and multivariate analysis using multiple logistic regression models not conditioned. We used the method Forwards, whereby the variables with p-value <0.20 in the univariate analysis were tested in logistic analysis as increasing order of p-value in order to identify variables that remain associated with or could adjust the model. The measure of association used was the odds ratio (OR) with 95% confidence interval and significance level set at p-value <0.05 for the tests.

The development of the study met national and international standards of ethics in research involving human subjects.

Resultados

A total of 421 individuals participated in the study, they had a mean age of 40.9 years, they were mainly white men (58%), with a partner (67.9%), with children (71.3%), adherents to religions (89.8%), had completed high school (36.8%), included in the labor market (80.3%), with incomes between 2.1 and 4 times the minimum wage (34%), employers/independents (40.9%), with no health insurance (52.7%) and belonging to economy class B (53%). We found a prevalence of 23% and 42.8% for fair/poor self-perceived health and morbidity, respectively.

In univariate analysis of fair/poor self-perceived health, we found an association (or p values <0.20) with the following variables, in order of significance: age (p <0.001), education (p <0.001), occupational status (p <0.001), economic class (p <0.001), work (p = 0.002), family income (p = 0.005), ethnicity (p = 0.054), health insurance (p = 0.065) and religion (p = 0.118). However, only the variables age, occupational status and education remained in the multivariate model because men, aged between 30 and 39 years (p=0.012, OR=2.94) and unemployed (p=0.025, OR=3.17) reported more often fair/poor self-perceived health, whereas those with high school education had significantly lower odds ratio than those with lower levels of education for this outcome (Table 1).

Table 1. Socioeconomic and demographic variables with self-perceived health

<table>
<thead>
<tr>
<th>Socioeconomic and demographic variables</th>
<th>Self-perception of health (fair/poor)</th>
<th>n(%)</th>
<th>OR (95%IC)</th>
<th>p-value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29</td>
<td>10(11.0)</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>30 to 39</td>
<td>27(29.4)</td>
<td>2.94(1.26; 6.86)</td>
<td>0.012</td>
<td></td>
</tr>
<tr>
<td>40 to 49</td>
<td>20(16.9)</td>
<td>1.26(0.52; 3.09)</td>
<td>0.606</td>
<td></td>
</tr>
<tr>
<td>50 to 59</td>
<td>40(34.2)</td>
<td>2.29(0.95; 5.53)</td>
<td>0.064</td>
<td></td>
</tr>
<tr>
<td>Occupational status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent/employer</td>
<td>39(22.7)</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Employee</td>
<td>26(16.6)</td>
<td>0.76(0.43; 1.36)</td>
<td>0.370</td>
<td></td>
</tr>
<tr>
<td>Retired/on sick leave</td>
<td>21(44.7)</td>
<td>1.95(0.9; 4.15)</td>
<td>0.084</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>9(45.0)</td>
<td>3.17(1.15; 8.72)</td>
<td>0.025</td>
<td></td>
</tr>
<tr>
<td>Student/Intern</td>
<td>2(8.0)</td>
<td>0.51(0.10; 2.57)</td>
<td>0.419</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Until 4ª série</td>
<td>22(44.0)</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>31(31.0)</td>
<td>0.66(0.31; 1.39)</td>
<td>0.279</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>23(14.8)</td>
<td>0.38(0.16; 0.87)</td>
<td>0.023</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>21(18.6)</td>
<td>0.63(0.24; 1.65)</td>
<td>0.346</td>
<td></td>
</tr>
<tr>
<td>Economic Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>4(12.9)</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Class B</td>
<td>37(16.6)</td>
<td>1.52(0.46; 5.05)</td>
<td>0.494</td>
<td></td>
</tr>
<tr>
<td>Class C/D</td>
<td>55(33.1)</td>
<td>2.60(0.71; 9.48)</td>
<td>0.149</td>
<td></td>
</tr>
</tbody>
</table>

*Multiple Logistic Regression, with model adjusted by the variable “economic class”*
white (p=0.016, OR=1.69) reported morbidity more frequently than other men (Table 2).

**Table 2.** Socioeconomic and demographic variables with reported morbidity

<table>
<thead>
<tr>
<th>Socioeconomic and demographic variables</th>
<th>Morbidity</th>
<th>Age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>20 to 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24(26.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 to 39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26(27.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 to 49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53(44.9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 to 59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77(65.8)</td>
</tr>
<tr>
<td>Occupational Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent/employee</td>
<td>72(41.9)</td>
<td>1</td>
</tr>
<tr>
<td>Employer</td>
<td>55(35.0)</td>
<td>0.88(0.55; 1.41) 0.592</td>
</tr>
<tr>
<td>Retired/on sick leave</td>
<td>36(76.6)</td>
<td>3.01(1.36; 6.69) 0.006</td>
</tr>
<tr>
<td>Unemployed</td>
<td>10(50.0)</td>
<td>1.62(0.60; 4.34) 0.333</td>
</tr>
<tr>
<td>Student/Intern</td>
<td>7(28.0)</td>
<td>1.04(0.37; 2.87) 0.937</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>114(46.7)</td>
<td></td>
</tr>
<tr>
<td>Not white</td>
<td>66(37.3)</td>
<td>1.69(1.10; 2.87) 0.016</td>
</tr>
</tbody>
</table>

*Multiple Logistic Regression

**Discussion**

Among the limitations of this study, we emphasize the fact that the data collection was conducted during periods of the day, which represent great difficulty to find men in their homes, which may have afforded greater proportion of independent employed men, unemployed men, retirees and men on sick leave. Still refers to the limitation the cross-sectional design, which does not allow the establishment of causal relationships or predisposes to reverse interpretations of causality. However, it is emphasized that this study identified important associations of socioeconomic and demographic factors with indicators of health needs among adult men, which direct perspectives of work actions for nurses.

In this sense, the results of this study present substantial epidemiological information for the organization of services in the health care of men, because they point to factors to be considered in the approach to male health needs. Furthermore, it emphasizes the importance of nursing professionals to consider the male self-perception and the presence of morbidity, as well as associated factors, concerning, however, the singularities of gender in the perception of these indicators by men.

The prevalence of fair/poor self-perceived health found (23%) is similar to the study conducted with adults in southern Brazil (22.3%), which compared with the adolescents and the elderly, but diverged from the prevalence in northern Brazil. Most of the studies also address the elderly population and generally have prevalence higher than 30%. It is noteworthy the gap relating to the investigation of factors associated with the same indicator of health needs, especially in the adult population, and even more among men.

It should be noted that self-perceived health is an easily collected variable, and exposure to diseases (diagnosed or not by a health professional). The impact that these generate in the physical, mental and social well-being of individuals, being important in the analysis of individual and population health by health professionals. Understanding the health subjectively creates relationships with other factors involving the individual’s life (such as access to information), in addition to the physical condition, which reinforces its importance as an indicator of health needs.

The association of this variable with advancing age has been observed in the literature, mainly due to the increase in chronic diseases and complications, most prevalent among the elderly. However, the present study identified a significantly higher proportion of fair/poor perception of their health for men aged between 30 and 39 years. It is inferred that this finding shows the importance of further investigation on the health of the adult male and on aspects that influence it, in this phase of life, and more specifically that lead men to refer to a negative perception of health.

The occupational status proved important in regard to fair/poor self-perception and this finding is consistent with other studies, in that inactive individuals in relation to the work, especially the unemployed, also are more likely to live in unfavorable health conditions and seek health services. The occupational status may be a determinant of health inequalities, especially when...
Factors associated with indicators of health needs of adult men

considering the possibilities of social protection (with/without work bond/social security contributions).\(^{(13)}\)

Regarding the economic class, it does not show association, we observed in other studies that this variable is important in regard to self-perceived health.\(^{(9,10)}\) The literature reveals that education and socioeconomic status converge in the formation of certain social and cultural contexts, implying health beliefs, perceptions and motivation to act, determining behaviors and lifestyles.\(^{(13)}\) Therefore, it is worth mentioning the need for health professionals to know these characteristics of men in order to contextualize their actions, because the appropriate professional support can also be determinant of self-perceived health.\(^{(14)}\)

Regarding the reported morbidity, the identified prevalence is in the interval range by a national study, which is 33.9% to 62.0% among individuals aged 25 to 64 years. In studies considering Morbidity as only hypertension and diabetes mellitus were noted prevalence similar to 30% adults.\(^{(15,16)}\) The male population has important deficiencies of self-care, which increases the rates of morbidity and mortality and requires the commitment of health professionals in the inclusion of men in programs and services, particularly in primary care.\(^{(17)}\)

In a study conducted in a small city inland of Paraná State was evident that men report less their health problems than women, which is linked to the way men perceive and conceive health.\(^{(18)}\) Thus, besides considering the possible underestimation of data on morbidity among men, health professionals should know the peculiarities and individualities as the recognition of morbidity, according to gender, in order to provide access, especially men, to health actions.

Among adult men, we found that those with more than 40 years when compared to younger patients reported more often having diseases. This finding is according to other studies that found increasing trend of diseases with advancing age, mainly due to biological issues, time of exposure to risk factors and aging.\(^{(19)}\) It is noteworthy that, although the reference to morbidity was higher among older men, the same was not true in relation to self-perceived health, which suggests the existence of other variables that imply about the way men perceive their health as they age.

Thus, we emphasize the importance of occupational status with regard to the association with morbidity. In men on sick leave, this association can be established in two ways: first, in that the work conditions, the non-recognition of their role and the dissatisfaction with this favor the development of disease; and, second, that the existing morbidity or worsening, undertakes the work and determines the distance.\(^{(18)}\) Both situations deserve attention from policies and health services, so that health professionals can identify occupational hazards and act on them, contributing to the maintenance of adequate health conditions for men to develop their activities, especially as they attribute important sociocultural value to the work.\(^{(20)}\)

With respect to ethnicity, lack of studies investigating health inequalities, specifically from the reported skin color as being associated to morbidity is observed. However, the finding of this study - that is, the highest proportion of individuals reporting morbidity was white - differs from other studies that have shown significant associations between black skin and causes of morbidity and mortality, mainly external causes.\(^{(21,22)}\) Although there is influence of self-perceived health over reports of presence of morbidity, we cannot justify the association of skin color with morbidity from this variable, because the association between this perception and the skin color was not identified in present study and in another study conducted in southern Brazil.\(^{(9)}\)

In general, this study contribute to the organization of health services by identifying those factors associated with indicators of health needs. Similarly, a study investigated adults in the use of medical and hospital services in Canada and the United States showed that indicators of health needs (self-perceived health and morbidity) are factors directly related to the demand for health care.\(^{(13)}\)
It is noteworthy that self-perceived health, may still be related to adherence to preventive, promotion or treatment practices, while the morbidity as assessed need, can determine the type of practice to be implemented in monitoring health adult men. However, these aspects are still indicators that, as a rule, are not taken as targets of health services in everyday practice toward men. In this sense, the identification of factors associated with these indicators, as findings of this study may contribute to the direction of attention to adult male and contextualize the actions taken by health teams, aligning them to the characteristics that influence the socialization of men’s needs.

Acknowledgements
To Coordination of Improvement of Higher Education Personnel and Araucaria Foundation of Support of Scientific and Technological Development of Paraná (Masters’ student scholarship, GO).

Collaborations
Arruda GO; Corrêa AC and Marcon SS contributed in the design and development of research, analysis and interpretation of data, drafting the article, critical revision of the important intellectual content and final approval of the version to be published.

Conclusion
The age and occupational status were found to be associated factors, both with regard to fair/poor self-perceived health and morbidity among adult men, and the education level and ethnicity were associated with self-perceived health and presence of morbidity, respectively. Although not statistically significant, the economic class was an important factor in setting the proposed model for self-perceived health.

References
Factors associated with indicators of health needs of adult men


Abstract

Objective: Analyzing the opinion of nurses about nursing care to patients with brain death and potential organ donors.

Methods: A descriptive, exploratory study, of qualitative approach, carried out in a general hospital. The produced material was analyzed, from where emerged the category called Dimensions of care, with two subcategories, namely: technical dimension and bioethical dimension.

Results: The dimensions of the nursing care to potential donors of organs and tissues give indications of a practice focused on maintaining hemodynamic, also with the presence of the conflict between assisting patients with brain death or others with possibilities of survival.

Conclusion: The nursing care to potential organ donors is a complex process and requires better skills and emotional maturity, which are not always present.

Keywords
Nursing care; Brain death; Tissue donors; Intensive care units

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Introduction

The care for patients with brain death is characterized as a complex activity, implemented by multidisciplinary teams working in intensive care units. In such activity, the role of nurses stands out, since they are responsible for providing direct care for the potential organ donors and their families. Their work is of fundamental importance in the management of the pathophysiological repercussions characteristic of brain death, in the hemodynamic monitoring and in the provision of individualized care. The success of transplantation is closely related to the ideal maintenance of the potential donor.

The role of nurses in the embracement of patients’ families is of crucial importance in this moment, since they offer support and sufficient and appropriate information for families in order that they can collaborate with the process of donation and transplant, if this is their will.(1)

The regulation of brain death diagnosis by the Federal Council of Medicine (CFM - Conselho Federal de Medicina) occurred in 1991, and it was defined as the irreversible condition of all respiratory and circulatory functions or cessation of all brain functions, including the brain stem.(2)

The maintenance of the potential donor of organs and tissues should be carried out as soon as the suspected brain death occurs. The awareness of the irreversibility of the condition of death should alert professionals about the chance of using the organs for transplantation. However, the actions of these professionals are essential for maintaining the body waiting in appropriate hemodynamic conditions, while the family decides about the donation of usable organs.(3)

The family is usually fragile and needs care and attention from the health care team, as they are facing a moment of pain with the diagnosis of brain death and the loss of a loved one. In most of the times, the death occurs tragically and unexpectedly. At this moment, the doubts of family members should be eliminated at all stages of the process, and it is essential that the professionals are adequately prepared to operate in this process. Thus, it is possible to establish a link between the team and the family, which may influence, positively or not, at the time of decision about the organ donation.(4,5)

Given this context, it is important to identify elements in the work process of nurses with the patients who are potential organ and tissue donors and their families that may interfere in the donation/transplantation process.

The nurses of intensive care units have different conceptions of values, as well as social, religious, philosophical and cultural beliefs that may impact on their everyday actions, in the relations with the family of patients with brain death and in the whole process of donation and transplantation. Hence, the objective of this study is to analyze the opinion of nurses about the nursing care to patients with brain death and potential organ donors.

Methods

This is a descriptive, exploratory study of qualitative approach, carried out in an intensive care unit of a general hospital in the city of Fortaleza, state of Ceará, northeast region of Brazil, in the period between August and December 2013. The research subjects were 30 nurses who had been working in the institution for at least six months. This is because after this period, allegedly, the professional is adapted to the environment and the experience of assisting the patients who are potential organs and tissue donors.

Data were generated by two sources. One were the interviews using a structured questionnaire, containing a part of the characterization of the research subjects, with information on gender, age, length of service and training in the field of transplantation. The other was composed of five guiding questions: How do you conceive the donation of organs and tissues? How is your daily life in the care of patients who are potential donors of organs and tissues? How do you perceive your professional practice with patients who are potential organs and tissues donors? Do you consider there are differences in the care provided to patients with brain death and other hospitalized patients? If yes, what are these differences? What are the implications of your
practice to patients with brain death for completing
the donation-transplantation process?

The interviews were recorded and transcribed to
carry out the content analysis.

In the construction of results, excerpts from
speeches were used to illustrate the findings that
were classified into two subcategories – Technical
dimension of nursing care to the potential organ
donor; Bioethical dimension of nursing care to the
potential organ donor. These subcategories origi-
nated a single category called Dimensions of nurs-
ing care to the potential donor patient.(6)

The development of the study met national and
international standards of ethics in research involv-
ing human beings.

Results

The studied group was composed of 30 nurses with
the following characteristics: 28 female and two
male individuals; aged between 20 and 60 years; 17
had training time lower than five years; 12 were spe-
cialists in intensive care; and only three had training
in transplantation.

Category: Dimensions of nursing care to
the potential donor patient
This category grouped aspects related with care to
patients with brain death and potential organ do-
nors, and their families. Two subcategories emerged
from this: Technical dimension of nursing care to the
potential organ donor; and Bioethical dimension of
nursing care to the potential organ donor.

The technical dimension of care comprises the
professional skills, the fulfillment of protocols and
specific technologies for this care, focused on care
aimed at maintaining, monitoring and making via-
able the organs for transplant. The bioethics dimen-
sion consists in care in the context of interpersonal
relationships with patients and their families.

Subcategory 1: Technical dimension of
nursing care to the potential organ donor
Nurses reported that care to potential organ donor
patients is permeated by many complementary and
interdependent activities, configuring a complex,
multidimensional and multidisciplinary process.

Based on the reports of the study subjects, this
subcategory seeks to demonstrate the need for a
differentiated care to patients with brain death and
potential organ donors, with all the technological
support and scientific knowledge, aiming to make
the donation organs viable.

It is a potential organ. Some people may benefit
from these organs. So I try to keep the blood pressure,
keep the patient in temperature, heat this patient, if
the pressure starts to get lower and go down, I ask the
doctor to start vasoactive drugs, to make more fluids.
I will hydrate, protect the corneas, keep the
pressure hemodynamically stable, do everything
possible to maintain a stable condition and enable
the donation.

The nurse also reported being responsible for
other tasks regarded as indirect care, in the process
of monitoring the potential organ donor patient, as
it appears in the speech:

[...] Making the act itself faster. From provid-
ing the declaration and informing the team, trying
that the second assessment is made as soon as possi-
ble, until assisting the doctor who’s doing the initial
evaluation, in order that it occurs satisfactorily.

The nurse has an important place in the team
of organ transplant, and should be trained to start
the donation process, which includes, among
other procedures, the identification and notifi-
cation of the donor to the hospital coordination
donation team, the monitoring and maintenance
of these patients, as well as the embracement and
care for their families.

Subcategory 2: Bioethical dimension of
nursing care to the potential organ donor
This subcategory combines aspects of posture and
action that nurses deem as necessary with the fam-
ilies, and for maintaining the body of patients in
brain death. At this point, the personal and ethical
values interfere in the professional practice with not
always positive effects, and repercussions on the do-
nation/transplantation process.

The difficulties of dealing with patients in brain
death and potential donors of organs and tissues re-
Nursing care to patients in brain death and potential organ donors

sult on the neglect of care and professional distance from patients.

In general, a change in the behavior of professionals is noticeable in relation to the provision of care from the moment when the diagnosis of brain death is defined.

When dealing with patients in brain death and potential donors, the nurses mentioned the importance of maintaining the care, considering that the lifeless body still represents a person and as such, deserves care and respect, as expressed in the speeches:

First, I think the issue of respect must be very well preserved. Despite being a person in brain death, it is still a living person there, a body that still has a beating heart.

[...] The assistance has to be maintained with dignity and respect.

In this subcategory, the ethical issues, of rights and duties of professionals stand out, in relation to organ donors and their families, as in the discourse excerpt below:

We start by giving a differentiated attention to the family, not as with a living patient, when we give hope to the family that the patient will be fine and get better. And we try to talk to the family, for the family understand and accept the mourning and also for preparing to the donation.

The nurse recognizes that organ donation is an act of solidarity of the family who experiences the pain of loss, and that despite the suffering, is able to detach from the body (material) of the loved one and opt for the donation.

The empathic behavior of nurses with the family can be an important support to these people, although it emotionally drains the professionals, reflecting in their professional practice, leading them to withdraw from those moments as a form of protection.

In the speeches of nurses, it was possible to identify that they feel responsible, directly and indirectly, by the care of patients in brain death, considering the aspects of technical and bioethical dimensions of care to patients who are potential donors of organs and tissues and their families.

Discussion

The speeches refer the technical and bioethical dimensions that constitute the nursing care to patients who are potential donors of organs and tissues and their families. The concern of these professionals is noticeable in relation to technical procedures for the hemodynamic maintenance of patients in brain death, and for acceleration of the process.

The assistance of nurses to patients with brain death aims to preserve the condition of the potential donor. The transplantation of organs and tissues is a safe and effective alternative treatment of various diseases that determines improvements in the quality and perspective of life. Given the growing shortage of organs, it is essential to optimize the use of organs obtained from donors with brain death, which are the main source of organs for transplants currently.\(^7\)

The demands for care of the patient with brain death is differentiated from others in its specificities, because the aim of the care is different and no longer a curative treatment. The assistance of nurses will be focused on the stabilization of multiple deleterious effects that brain death has on the body in a short period of time, causing hemodynamic instability, which requires extreme agility in bureaucratic processes.

Some nurses state not to prioritize patients who are potential donors of organs and tissues due to considering that other hospitalized patients with life prognosis are more important. The fact that patients in brain death are in an irreversible situation leads professionals to distance themselves from them.

The nurses recognize that the withdrawal from care to patients with brain death is caused by not accepting the condition of patients, associated with the 'lack of professional, personal and emotional maturity'. It stands out that (not) caring for patients is not due to negligence, but by ignorance and psychological and emotional unpreparedness in dealing with the situation. However, it is emphasized that this kind of attitude directly reflects on the process of organ donation.
Some studies have found similar results with regard to nursing care for these patients. The person with brain death is the one receiving less attention and care by the nursing staff.\(^{(1-3)}\)

This distance from patients with brain death is reflected in the care provided, because the nurses return to their service with care focused on the technical performance, and concern with control of equipment and technologies present in the intensive care unit. This change in conception can impair the assistance to potential donors and their families, having as consequences the familiar negative and loss of organs that could be donated.\(^{(3)}\)

Bioethics is considered a transprofessional, transdisciplinary and transcultural space in health and in life, because it reflects the moral status of our complex societies, emphasizing the quality of life based on tolerance and solidarity. It leads to a reflection about the conflicts that emerge from human evolution and the scientific revolution, but also concerns the existing problems, the emerging problems and the persistent problems.\(^{(8,9)}\)

However, it is worth emphasizing that the focus of bioethics is the quality of human practices on the phenomena of life.\(^{(9)}\) In the care for patients with brain death and potential donors of organs and tissues, the nurses find themselves in a dilemma when caring for a dead person that at the same time, makes life possible.

The process of donating organs is permeated by issues involving human morality. The care of patients with brain death stands out, since they are considered clinically dead, but have the characteristics of a living person. Thus, the professional relationship with the donor leads to a reflection on the meaning of the human being.\(^{(10)}\)

When thinking about death and dying, professionals give the meaning of finitude associated with the transience of the material being, which is related to feelings of loss, sadness, grief and longing. Death means transition, transformation and rebirth, relating this perspective to religious beliefs, and finally, gives contradictory meanings.\(^{(1,8,9,11)}\)

The organ donors are seen as a means and not an end in themselves. The professional gives them importance because they congregate organs and tissues that will be viable to be used by others, hence, they are a source of hope to someone who is waiting for a transplant. However, the donor in brain death is clinically dead, but maintains the characteristics of an alive person.\(^{(9)}\)

Conceptually, the donors are not ‘people’ for their condition of death, however, at no times the nurses refer to them as dead or corpse. The nurses care for ‘people’ with physiological functions preserved alive, and the family gives the status of alive for a dead person, making it difficult to understand the potential donor as a corpse.\(^{(7)}\)

In the opinion of nurses, being with the family of the donor is a complex experience, but they recognize the delicacy and respect needed in this moment of great pain for the family. The nurses suffer due to understanding that even in this situation they need to perform their professional role.\(^{(4,5,10)}\)

More than informing the status of potential donor patients, or about the process of organ donation, it is essential that nurses, for being closer to family, are available and open to perceive the needs of the relatives. Not only informing them about the real condition of the patient with brain death, but also helping them to understand reality as it is presented.\(^{(10,11)}\)

The nurses who position themselves away from the contact with family members act this way in an attempt of self-preservation, to avoid exposing their human vulnerability due to the inability of organizing the feelings of sadness and helplessness in that moment.\(^{(11)}\)

In situations that cause discomfort, the health professionals fractionate and isolate themselves. Dealing with distressing situations hinders the care for others, which may explain the difficulty of the staff in dealing with patients in brain death, since the universe of these patients is surrounded by situations of suffering and helplessness.\(^{(1,8,9,11)}\)

It is important to emphasize that the care provided to patients with brain death requires not only technical skills from nurses, but also skills of multiple aspects (physical, biological, psychological, social, spiritual, economic, political, sociological and historical) closely inter-
Nursing care to patients in brain death and potential organ donors
twined. The fact that professionals cannot deal with some of these aspects may lead them to not care properly, keeping away of patients and their families, or even neglecting the patients in this condition.(8,9,11)

Providing nursing care to the families of potential donors who are part of the organ donation process is of utmost importance. Joining patient care with the care for the family is a positive aspect in the direction of reaching the consent in the donation of organs of brain-dead patients.(1,4,5,10)

Conclusion

The nurses seek to address the technical and bioethical dimensions of care to patients who are potential donors of organs and their families, while recognizing the complexity of the process and the need for better qualification and emotional maturity.

Collaborations

Cavalcante LP; Ramos IC; Araújo MAM; Alves MDS and Braga VAB declare that contributed to the project design, analysis and interpretation of data, drafting the article, critical revision of the important intellectual content and final approval of the version to be published.

References

Sexual dysfunction and associated factors reported in the postpartum period
Disfunção sexual e fatores associados relatados no período pós-parto

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Erika de Sá Vieira Abuchaim²
Kelly Pereira Coca²
Ana Cristina Freitas de Vilhena Abrão²

Abstract
Objective: To estimate the prevalence and factors associated with sexual dysfunction in the postpartum period.
Methods: Cross-sectional study of 200 postpartum women in their resumption to sexual activity. Data were collected in a private place, through interviews and recorded in forms, containing information regarding sexual life of postpartum women.
Results: Among the women studied, it was found that 33.5%, 76.0% and 43.5% had sexual dysfunction before pregnancy, during and after delivery, respectively. The types of dysfunction most frequently identified were dyspareunia, vaginismus, dysfunction of desire, orgasmic and arousal. The significantly associated factors were Catholic or protestant religions, vaginal delivery with suture, dyspareunia during pregnancy, vaginismus before pregnancy and working hours over 8 hours/daily.
Conclusion: The prevalence of sexual dysfunction was high and associated factors were religion, working hours, previous history of dysfunction and type of delivery.

Keywords
Sexual behavior; Obstetrical nursing; Nursing research; Physiological sexual dysfunction; Postpartum period; Questionnaires

Resumo
Objetivo: Estimar a prevalência e os fatores associados à disfunção sexual no período pós-parto.
Métodos: Estudo transversal com 200 puérperas que retomaram a vida sexual ativa. Os dados foram coletados, em local privado, por meio de entrevista e registrados em formulário contendo informações pertinentes a vida sexual das puerperas.
Resultados: Dentre as mulheres pesquisadas verificou-se que 33,5%, 76,0% e 43,5% apresentavam disfunções sexuais antes da gravidez, durante e após o parto, respectivamente. Os tipos de disfunção identificados com maior frequência foram a disparesunia, seguido do vaginismo, disfunção do desejo, orgasmica e excitação. Os fatores significativamente associados foram as religiões católica ou evangélica, o parto vaginal com sutura, a disparesunia durante a gravidez, o vaginismo antes da gravidez e uma jornada de trabalho além de 8 horas/diárias.
Conclusão: A prevalência das disfunções sexuais foi alta e os fatores associados foram: religião, jornada de trabalho, história prévia de disfunção e tipo de parto.

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Conflict of interest: Abuchaim ESV is Associate Editor of the Acta Paulista de Enfermagem and did not participate in the peer review process of the manuscript.
Introduction

Sexual dysfunction prevalence varies between 20-73% in women. It is a behavior resulting from a combination of biological, psychological, social and cultural factors, which makes a total or partial blockage of the sexual response of subjects related to desire, arousal and orgasm.\(^{(1,2)}\) In this sense, it is a public health problem and thus deserves the attention of health professionals.

Although the difficulties in sexual activity could affect various stages of an individual’s life, the pregnancy-puerperal cycle, especially the postpartum period, deserves a closer analysis, as it promotes significant changes in women’s, partner’s and family lives.\(^{(3)}\)

The need to adapt to the demands of the newborn and the parental role may adversely affect the intimacy of the couple, as well as changes in body image and the desexualized figure of woman, cultivated by society. These features, plus the fear of pain in the intercourse and/or becoming pregnant again may cause distress difficulties and limitations in the sexual female sexuality.\(^{(1,4)}\)

The difficulties in returning to sexual activity, which usually occurs around the 6th week postpartum and encouragement of partner, are common in most of women. Early diagnosis of female sexual dysfunction, in this period, has been little discussed in the scientific literature, despite the direct impact on quality of life and woman’s health. Early identification is critical for the detection of emotional and relational conflicts, in addition to medical referrals.\(^{(3,5,7)}\)

The dyspareunia appears in most studies as major sexual dysfunctions in the postpartum, compromising the desire, sexual satisfaction and frequency of sex. Presumably related to normal delivery, the presence of episiotomy and/or lacerations and breastfeeding, dyspareunia is not the only sexual dysfunction that affects women in this period of their lives, deserving an expansion of the studies on this theme.\(^{(4,7,8)}\)

Research shows that the integrality of care in women is neglected, since most of the orientations of healthcare team about sexuality postpartum are limited to recommend the resumption period of sexual activity, without addressing the aspects of the quality and the strategies to deal with the changes resulting from pregnancy-puerperal cycle.\(^{(1,9,10)}\)

Knowing the epidemiology of sexual dysfunctions may contribute to the address actions in the care process. The aim of this study was to estimate the prevalence and factors associated with sexual dysfunction in the postpartum period.

Methods

Observational study with cross-sectional design conducted in an outpatient pediatric clinic in the State of Alagoas, northeastern Brazil. The population consisted of women with partners during the data collection period, which had already returned to sexual intercourse and were between the third and sixth month postpartum. It was considered as exclusion criteria: pregnant women and/or any pathology that could not recommend sexual intercourse for women. The sample size calculation considered: the proportion of 50% in the population, absolute precision of 7% and a significance level of 5%; the final sample was set at 200 postpartum women.

Data collection was performed by one of the researchers, through interviews with eligible women, in a private location, preserving the individuality.

The data collected were recorded on a specific form developed specifically for the study; and the variables studied were related to data regarding identification, obstetric history and sex life, including sexual dysfunction, before and during pregnancy and after delivery.

The storage of the data was performed on the electronic spreadsheet (Microsoft Excel\(^{®}\) 2003), in which each row corresponded to a form of data collection. Two entries were performed independently and blindly. Disagreements were resolved through form consultation.

Regarding statistical analysis, qualitative variables, absolute (n) and relative (%) frequencies
were used. For quantitative variables, we used measures of central-tendency: mean, median and standard deviation (minimum and maximum) to present variability. In the comparisons of the categories of the qualitative variables the chi-square or Fisher’s exact test were used when necessary. Comparing mean between two groups of interest, the Student t test was used. All tests had a significance level of 5%.

A logistic regression analysis was used to determine which characteristics influenced together sexual dysfunction. For this analysis, the initial model, the variables that had a significance level of <0.10 in the univariate comparisons between patients with and without sexual dysfunction were included. In this analysis, using the stepwise forward method, variables analyzed together that did not present statistical significance were not included in the final model. Thus, from the variables initially included in the model, only entered the final model, those with statistical significance (p <0.05); the others were not part of the model. For all tests, we considered a significance level of 5%.

The development of the study met national and international standards of ethics in research involving human beings.

Results

A total of 200 postpartum women with the following sociodemographic characteristics were included: mean age of 24 years, with an average of 7.8 years of education and family income of one or more minimum wages. Among the postpartum women, 184 (92%) lived with their partners, 172 (86%) worked only at home, averaging 8.5 hours of work per day, and 101 (50.5%) were Catholic. On average, 4.6 people lived in the house.

As for obstetric data, we found that 44.5% women were primiparous. The majority 55.5% had undergone vaginal delivery and from these, 33.5% were in their 3rd month postpartum, 21.5% were in the 4th month, 20% at 5th month and 20% at their 6th month postpartum. The resumption to sexual activities occurred, usually between 6 and 7 weeks postpartum and, in most cases 70%, initiated by the partner.

The prevalence of sexual dysfunction identified before pregnancy was 33.5%, increasing to 76.0% during pregnancy, declining to 43.5% in the postpartum period.

Data on table 1 show the distribution of types of sexual dysfunction presented in postpartum women.

<table>
<thead>
<tr>
<th>Table 1. Types of sexual dysfunction identified in the postpartum period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of sexual dysfunction*</td>
</tr>
<tr>
<td>Dysfunction of desire</td>
</tr>
<tr>
<td>Dysfunction in the arousal stage</td>
</tr>
<tr>
<td>Dyspareunia</td>
</tr>
<tr>
<td>Orgasmic dysfunction</td>
</tr>
<tr>
<td>Vaginismus</td>
</tr>
</tbody>
</table>

*Some women had more than one disorder; n=87

Data on table 2 show the logistic regression analysis as the aggregate interference of the variables for the presence of sexual dysfunction in the postpartum period.

<table>
<thead>
<tr>
<th>Table 2. Interference of the variables for the presence of sexual dysfunction in the postpartum period (n=200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Religion</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>Catholic</td>
</tr>
<tr>
<td>Protestant</td>
</tr>
<tr>
<td>Delivery</td>
</tr>
<tr>
<td>Cesarean</td>
</tr>
<tr>
<td>Vaginal with suture</td>
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<tr>
<td>Vaginal without suture</td>
</tr>
<tr>
<td>Dyspareunia</td>
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<tr>
<td>During pregnancy</td>
</tr>
<tr>
<td>Vaginismus</td>
</tr>
<tr>
<td>Before pregnancy</td>
</tr>
<tr>
<td>Workload</td>
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<tr>
<td>Above 8 hours/day</td>
</tr>
</tbody>
</table>

Cl – Confidence Interval
**Discussion**

As an observational study with cross-sectional design, we could not establish cause and effect relation, thus limiting the results of the research.

Recognizing sexual dysfunctions as a public health problem, which affects most women during pregnancy-puerperal cycle, especially during pregnancy. In the postpartum period, although showing improvement, a significant level of dysfunction is maintained which shows its importance for health professionals. Caring for women integrally means being concerned with their sexual health, requiring nurses to search for theoretical and practical approaches on the strategies that enable confrontation of this reality.\(^{(1,3,4,11)}\)

Similar results were identified in a study of women in the first 3 months of postpartum, in which it was identified that 83% of them experienced sexual problems, decreasing to 64% at 6 months - although not reaching pre-pregnancy levels of 38%.\(^{(12)}\) In this sense, the fact is that health professionals need to be aware of issues related to sexuality of women/couples.

The satisfactory exercise of sexuality, including sexual activity during pregnancy and postpartum is a concern not only of women, but present among couples, reinforcing the need for care in the difficulties by specialists, main professionals in the promotion of sexual health through clarification about the normal fluctuations that occur during pregnancy and after childbirth, with respect to the function and sexual interest.\(^{(4,6,13)}\)

In this sense, although sexual dysfunctions are well known, they are not diagnosed, because of inhibition of the woman who does not have a complaint, or the physician, who is uncomfortable to investigate. The diagnosis is relevant, since this problem interferes with quality of life, besides being associated with health issues in general. Studies show that although many couples present sexual difficulties, especially after the first birth, few are those who, in fact, seek professional help.\(^{(1,3,4,14)}\)

Regarding types of sexual dysfunctions identified in this study, we recognized more frequently, dyspareunia, vaginismus, dysfunction of desire and orgasmic, and finally, dysfunction of arousal stage. The factors associated with these dysfunctions were women belonging to the Catholic or Protestant religion; working over 8 hours/daily; vaginal delivery with suture; the presence of dyspareunia during pregnancy; and the presence of vaginismus before pregnancy.

The fact that Catholic and Protestant women present nearly three times higher risk for sexual dysfunction than those without religion invites us to reflect about maintenance of the century ideal worshiped woman/mother immaculate and submissive as one that is fully dedicated to her child and should not or can experience the pleasures arising from sexual activity.\(^{(13,15)}\)

Trying to combine maternal functions with other conducted in society, for example, working, some women end up putting their needs as a last plan, running out of time, disposition and physical and/or emotional conditions for satisfactory performance of their sexuality.\(^{(13,15)}\) The results confirm this fact by highlighting working hours over 8 hours/daily, boosted by 12% with each additional hour work daily journey, which contributes to the presence of female sexual dysfunction.

The results also highlighted as a factor associated with the development of dysfunction in the postpartum period, type of delivery, i.e. vaginal with suture represented a threefold higher risk for sexual dysfunction when compared to the cesarean birth. Study conducted in 2010, comparing women with intact perineum after delivery, those undergoing episiotomy or who suffered lacerations to second degree perineal, reveals that these complaints had lower levels of libido, orgasm, satisfaction and pain during sexual intercourse.\(^{(11)}\)

However, as mentioned, the literature is inconclusive on the indication of cesarean delivery as a practical protection to female sexual function and promote early recovery of sexual activity during this period; instead, the studies diverge about the published results.\(^{(4,5,12)}\)

The ignorance of one’s own body, as well as the physical and emotional changes, characteristics of pregnancy, may increase the development of sex-
ual dysfunction in some women and/or couples. (9,13) The high prevalence of sexual dysfunction in pregnancy and childbirth cycle, particularly dyspareunia, found in this study and reinforced by the literature, seems to be justified by these conditions, and other factors such as perineal trauma, fatigue, physical discomfort, fear of infection, pain in the breasts, impaired of self-image and body image, and depression. (1,3,4,11)

Understanding the association of primiparity factor with female sexual dysfunction seems to be in both religion and familiarity of these women, with regard to their corporeality, their rights and their duties in functions within society. Education based on traditional precepts, veiled in a sexist male society, especially with regard to education and women’s sexual health, also seems to be present in this association. (13)

Most postpartum dyspareunia are related to local aspects of the genitalia, such as suturing, vaginal dryness, inflammation or infection. Studies confirm these findings claiming that perineal trauma, with or without suture, episiotomy and/or forceps are factors associated with insufficient lubrication and/or persistent dyspareunia in the postpartum. (1,4,7,16)

Vaginismus corresponded to the second leading cause of sexual dysfunction. When present before pregnancy, it represented a greater risk of 8.5 times for sexual dysfunction in the postpartum. Among postpartum women investigated, the causes referred to this dysfunction were the same as dyspareunia, strengthening the hypothesis previously mentioned, the little knowledge of them in their own bodies and their manifestations confusing pain and difficulty or unconscious inability to intercourse. (7,15)

Deficiency or absence of sexual fantasies and desire for sexual activity, defined as desire dysfunction, represented the third highest prevalence of sexual dysfunction in this population, which may be related to change in self-image and maternity. (7,15,16) Studies have shown that half of women experience changes in their libido in the first trimester with a significant deterioration in the last trimester, reaching 90% prevalence. (1,3,4,6)

In this study, the most frequent causes reported by the women were decreased desire to stress, fatigue and the presence of pain during intercourse. A similar result was found in another study, in which tiredness and fatigue, in addition to dyspareunia, depression and breastfeeding, contributed to the reduction of sexual desire. (1,3,4,15)

The orgasmic dysfunction was present in 10.5% of women interviewed. Much higher frequency, in the same period was identified in another study, with 41% in the first six weeks, decreasing to 27% at the 3rd month and 15% at the 6th month after delivery. (6)

Research conducted during pregnancy and after birth was conducted in English and nulliparous women. In the 3rd trimester of pregnancy, 67% reported lack of orgasm during sexual intercourse. In the postpartum period, these percentages were lower, ranging from 61%, 40% and 39% in the period between the 6th, 12th and 24th week, respectively. The orgasmic function was reported by most women at 12 weeks postpartum, similar to the period before pregnancy. (17)

Regarding the change in the arousal stage, the impairment was smaller in a number of women (8%). Pain was one of the most cited causes for the development of the deficit or lack of lubrication during intercourse, probably explained by the feeling of not being able to be all in the intercourse, being divided between the roles of woman, mother and wife. (15,16)

Studies are in agreement with the above hypothesis to unveil the reduction in rates of this disorder, as postpartum time increases, that is, as woman adapts to motherhood and the demands of the new situation. Among these index, one can cite the lack of lubrication present in 51% of women in the first 6 weeks postpartum, decreasing to 29% and 13% at 3 and 6 months postpartum, respectively. (4,17)

The fact that Catholic and protestant women present a nearly three times higher risk for sexual dysfunction than those without religion invites us to reflect on the maintenance of castrating and repressive functions of religion, perpetuating the century worshiped of the ideal of woman/mother immaculate and submissive, as one that is fully dedicated to her child, which should not feel and freely enjoy sexual and erotic pleasures. (15)
Trying to combine the maternal role to other roles they play in society, for example, work, make some women end up putting their needs last plan, running out of time, disposition and physical and/or emotional conditions for satisfactory exercise of their sexuality.\(^{(15)}\)

The results confirm this fact by highlighting the working hours over 8 hours/daily as a factor associated with the presence of female sexual dysfunction, which was aggravated in 12% every 1 hour added to the daily working time.

Although frequent, sexual dysfunction, especially postpartum, may be missed if health professionals are not aware and do not investigate the types and factors associated with their presence. It is important that there is integrality of care in assisting women, whatever stage of life in which they are.

The problems and difficulties may be minimized with appropriate orientation and encouragement to women to the presence of their partners in times of service, which will strengthen investigation and a better understanding of female sexual dimension.

**Conclusion**

The prevalence of sexual dysfunction was high and associated factors were religion, working hours, previous history of sexual dysfunction and type of delivery.

**Collaborations**

Holanda JBL; Abuchaim ESV; Coca KP and Abrão ACFV declare that contributed to the project design, analysis and interpretation of data; manuscript drafting, critical revision of intellectual content and final approval of the version to be published.

**References**

Meaning of aromatherapy massage in mental health

Significado da massagem com aromaterapia em saúde mental

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Abstract

Objective: To understand the meaning of the aromatherapy massage intervention in mental health for the patient during psychiatric hospitalization.

Methods: A qualitative study including 22 participants with a diagnosis of personality disorder hospitalized in a psychiatric unit of a general hospital. We used semi-structured interviews with a guiding question for participants, for whom the aromatherapy massage intervention was performed. The content of the interviews was assessed according to content analysis.

Results: Among the study subjects, there was a predominance of females and the majority presented a diagnosis of Emotionally Unstable Personality Disorder. Two categories that emerged were identified from qualitative data: “identifying the benefits of aromatherapy” and “enabling self-knowledge.”

Conclusion: The meaning of the aromatherapy massage intervention was represented by improvements in nursing care and treatment during psychiatric hospitalization, while assisting in the reduction of anxiety symptoms and coping with mental illness.

Keywords
Nursing research; Nursing care; Nursing, practical; Mental health; Aromatherapy

Resumo

Objetivo: Compreender o significado da intervenção de massagem com aromaterapia em saúde mental para o usuário durante a internação psiquiátrica.

Métodos: Pesquisa qualitativa que incluiu 22 participantes com diagnóstico de Transtornos de Personalidade internados em unidade psiquiátrica de um hospital geral. Foram realizadas entrevistas semiestruturadas, com uma questão norteadora aos participantes, os quais se submeteram a intervenções de massagem com aromaterapia. O conteúdo das entrevistas foi avaliado segundo a Análise de Conteúdo.

Resultados: Entre os sujeitos de pesquisa, houve predominância do sexo feminino e do diagnóstico de Transtornos de Personalidade Emocionalmente Instável. Dos dados qualitativos, emergiram duas categorias: “identificando os benefícios da aromaterapia” e “possibilitando o autoconhecimento”.

Conclusão: O significado da intervenção de massagem com aromaterapia foi representado por melhorias no cuidado de enfermagem e no tratamento durante a internação psiquiátrica, ao auxiliar na diminuição dos sintomas ansiosos e no enfrentamento do transtorno mental.

Conflicts of interest: none to declare.
Introduction

The utilization of complementary and alternative practices in hospitals has gradually increased around the globe and throughout the country. Among numerous techniques that integrate those practices, aromatherapy is based on the prescription of essential oils from aromatic plants, along with the therapeutic plan, administered using the dermal or olfactory pathway, in order to promote and assist the treatment of health problems from various medical specialties.

Aromatherapy is considered to be a growing area, with advances in medical specialties such as psychiatry and oncology. It has been shown to constitute a safe and potentially therapeutic resource to decrease symptoms, such as psychomotor agitation and aggression in patients with signs of dementia. A randomized controlled trial with 67 patients with dementia did not show a statistically significant difference associated to the use or nonuse of aromatherapy massage, however, improvements related to the aggression status were shown. In another similar study, no significant results were found comparing the use of the essential oil, Melissa officinalis, donepezil or placebo. The use of this practice for cancer patients showed an improvement in depressive and anxious symptoms. The use of a self-governing aromatic inhaler reduced symptoms such as nausea and anxiety, enhancing relaxation of cancer patients.

In this context, to provide aromatherapy as a working tool for use with the patient during psychiatric hospitalization helps with the identification of new ways to qualify the care provided by nurses in the area of psychiatry and mental health, in addition to strengthening the implementation and application of complementary and alternative health practices in the country, and to advance the development of knowledge that supports safe and effective practices. Given the above, the objective of this study was to understand the meaning of the aromatherapy massage intervention for the user with personality disorders during psychiatric hospitalization.

Methods

This was field research, using a descriptive, exploratory, and qualitative approach that included the meanings that users attached to aromatherapy during psychiatric hospitalization. A semi-structured interview was used as an instrument for data collection, with the guiding question: “How did you feel about your participation in the aromatherapy massage during hospitalization?”. The interviews were recorded and subsequently fully transcribed.

The results were analyzed according to content analysis, with the intention of understanding the obtained data and its immediate meanings. This means that overcoming uncertainty, and the possibility of an enriched in-depth reading of the investigated phenomenon were proposed. In this analytical procedure, the following steps were taken: (1) pre-analysis, (2) coding, (3) categorization and (4) inference.

Participating in the study were 22 patients in a psychiatric care unit in a general hospital in the state of São Paulo (SP), in treatment between May and October of 2013, with the medical diagnosis of Personality Disorders and Adult Behavior, according to the International Classification of Diseases (ICD 10), 18 years old or older. The selection of this population occurred by considering the prevalence rate in the unit, the impact that this condition caused on the health team, and the perception of the need to diversify nursing care that was offered in this unit.

We considered as exclusion criteria: hypersensitivity to essential oils, pregnancy or signs suggestive of pregnancy, continued use of antiarrhythmic medications, and cognitive impairment.
The intervention consisted of eight meetings that took place during the psychiatric hospitalization. In the first meeting, the initial contact between the researcher and the research subject was made. This meeting occurred no later than one day after admission to the unit, when the research was presented, and the signing of the consent form was explained. The aromatic solution was also applied in the patients’ antecubital fossa, and signs of irritation or allergy were observed during the following 24 hours (sensitivity test). From the second to the seventh meeting, sessions previously scheduled with users on alternate days occurred with aromatherapy massage and measurement of cardiac and respiratory frequencies. In the eighth meeting, which occurred a day after the last session of aromatic massage, a semi-structured interview with the study subject was performed.

The aromatherapy intervention was characterized by the application of essential oils in six sessions of massage on the muscles of the trapezius and the posterior thorax, lasting 20 minutes, three times a week, on alternate days for two weeks for a total of six sessions conducted in the patient’s room with him/her in the sitting position.

As for the application of the massage, the technique selected was the effleurage, or stroking, which is the application of light and continuous movements on the surface, performed with the entire palmar surface by applying movements in several directions. This is an established method in the aromatherapy literature since its inception, which promotes increased skin absorption of the essential oils and does not stimulate acupuncture points. (4)

The essential oils chosen were lavender (Lavandula angustifolia) and geranium (Pelargonium graveolens), since they present, chemically, a high concentration of ester of 40 to 55% and 15%, respectively. Thus, these oils have a soothing and calming action, being both indicated for anxiogenic situations. We used a 0.5% concentration of each essential oil that was diluted in a neutral gel application during massage. (4,13)

The development of this study met national and international standards of ethics in research involving human beings.

**Results**

Among the 22 subjects who participated in the survey, 18 were female (81.81%). The mean age of the sample was 34.6 years, with a minimum age of 18 years and a maximum age of 60 years. All patients resided in the same city in which the hospital was located, and had previously used anxiolytic drugs. In relation to psychiatric diagnoses, Emotionally Unstable Personality Disorder predominated in 18 of the study subjects (81.81%); two presented Histrionic Personality Disorder (9.01%), one had Antisocial Personality Disorder (4.54%) and one had Dependent Personality Disorder (4.54%).

The categories of data were prepared using the subject as the unit of record, which, in turn, was portrayed in context units, allowing the anchoring of their meanings. After the development of the qualitative analysis corpus, two categories arose: (i) identifying the benefits of aromatherapy and (ii) enabling self-knowledge.

**Category 1 - Identifying the benefits of aromatherapy**

In this category, the data that converged to identify the benefits of aromatherapy were presented among the diversity of themes identified by the research subjects.

- **Subcategory 1.1 - Favoring psychological and physical well-being**

  The subjects assigned to aromatherapy the function of promoting psychological and physical well-being during the hospitalization period, assisting them in adapting to the environment and reducing some characteristic symptoms of anxiety, such as fixed ideas related to personal problems, anxiety and the state of permanent alert. Collaborating with this experience, the aroma generated by the volatilization of the essential oils was actively perceived by subjects...
who assigned to it a factor of reassurance and safety.

In relation to physical symptoms, such as decreased psychomotor agitation, tremors of the extremities, palpitations and physical fatigue, which often feature a sudden onset and expose patients to experiences previously suffered and decontextualized during hospitalization. The reduction in symptoms during hospitalization offered a better development of integration, openness and a greater willingness of the patients to participate in activities that were offered to them.

- **Subcategory 1.2 - Improving sleep pattern**

  Research subjects reported irregularities in sleep patterns prior to hospitalization, including experiencing this in their homes, where they used to take medications for insomnia. Of the 22 study subjects, 20 reported improvement in sleep pattern (91%), with sleep becoming invigorating or by decreasing the difficulty of initiating sleep. This result was attributed to the application of aromatherapy, given the almost immediate improvement of the sleep pattern, as was noted by the research subjects on the evening after the intervention.

- **Subcategory 1.3 - Emphasizing the therapist-patient commitment**

  The intervention was explained in detail and scheduled with research subjects. This aspect confirmed the therapist-patient commitment, and was found to be positive, according to the discourses of research subjects. Furthermore, they reported the expectation generated by the scheduling of the sessions and the security they felt from the explanations that were offered on the intervention (essential oils used and the body part that would be massaged).

- **Subcategory 1.4 - Comparing drug therapy and aromatherapy**

  The research subjects compared, surprisingly, the agility they realized from the effects attributed to aromatherapy with the allopathic treatment they used, even before admission. They also exposed the importance of the availability of aromatherapy after discharge as an alternative to the use of inadvertent drugs if anxiety symptoms appeared suddenly.

**Category 2 - Enabling self knowledge**

The aromatherapy sessions favored the reflection of the research subjects about themselves and the events that led to psychiatric hospitalization. Whereas the psychological functioning of these patients caused pain in their intrapersonal and interpersonal relationships, activities that promote self knowledge favor their ability to address the recognition and control of symptoms, such as impulsivity and self-centeredness. Two subcategories composed this phenomenon.

- **Subcategory 2.1 - Promoting a time for self-reflection**

  The statements elucidate that the aromatherapy sessions served to provide a moment during psychiatric hospitalization in which the subjects could reflect on their actions and behaviors. The subjects illustrated that their daily routines limited these moments to reflect about who they are, about their feelings, their behaviors and their relationships. This reflection led to their awareness of how behaviors, emotional incontinence and impulsivity exposed their interpersonal relationships, creating suffering for themselves and those with whom they lived.

- **Subcategory 2.2 - Assisting in controlling symptoms**

  The research subjects were able to identify some symptoms related to personality disorders and observed their decrease: less impulsivity and irritability were the most cited. The reflection promoted by aromatherapy, as explained in the previous subcategory, allowed the research subjects to conceive of their symptoms as traits of their personality, taking responsibility for them. The mobilization of the family and the need for attention during visiting hours were symptoms addressed by research subjects and, according to the subjects, were controlled from the moment they became aware of their psychodynamic functioning.
Discussion

One must consider that the use of aromatherapy in healthcare and its configuration as a nursing care modality are emerging themes in the scientific literature, reflecting the lack of research that address these issues. Thus, we limit the discussion of the results of this research to specific theoretical frameworks of aromatherapy and complementary and alternative health practices. Another limitation of this research was the relationship between therapist and patient as a phenomenon that may have influenced the results, constituting a placebo effect, which is inherent in complementary practices. The results of this research, however, assist in addressing this limitation to be represented in a sub-analysis. Concomitant drug treatment performed during hospitalization represents a bias, as the relief of symptoms may have occurred due to the use of anxiolytics. It is noteworthy that all participants were already using this type of medication and still reported episodes of anxiety before and during hospitalization.

Regarding the study population, the prevalence of women and the diagnosis of Emotionally Unstable Personality Disorder are still questionable factors in the epidemiology of mental disorders. There is no consensus evidence that females have higher prevalence of this subtype of diagnosis. The young age of the population met epidemiological data that considers a negative relationship between the diagnosis of personality disorder and age.(14)

The benefits of aromatherapy were evident from the moment subjects experienced a decrease in anxiety, physical and psychological symptoms, and improved sleep patterns. These results have been suggested previously in studies of clinical design without, however, directly focusing on the users’ perception of such improvements.(13,15,16) These results are attributed to the use of essential oils of lavender and geranium and their respective chemical constitutions, although incomplete knowledge remains about their mechanisms of action. The lavender essential oil is beneficial and indicated for the treatment of irritability, heightened anxiety and insomnia, whereas geranium, in addition to these indications, is associated with hormone ac-

Complementary and alternative health practices offer the potential for technical care diversification in the Brazilian National Health System (known as SUS), as important tools in promoting autonomy over treatment and increasing the user’s share of responsibility about his or her health. Moreover, it is an alternative care practice to the use of a medical drug, discouraging the phenomenon of social medicalization.(18-20) These aspects are evident in the perception of the research subjects, when one observes that the improvements promoted by aromatherapy were experienced immediately, and when one compares them with the medications that had been taken previously.

The commitment established by the therapist during the intervention, represented by the establishment of dates and the fulfillment of the aromatherapy sessions, highlights the importance of positive recovery of the therapist figure, through the bond and commitment with the user. These factors are inherent to complementary and alternative health practices and represent some of the reasons why users seek out and use complementary treatments.(13,19,21) It is observed that psychiatric admissions in general hospitals is a place that fosters the establishment of this bond, because of the low turnover of professionals, thus offering follow-up throughout the patients’ hospitalization and the performance of the nurse as a therapist for patient care in techniques of complementary and alternative health practices. It is noteworthy that in the current mental health policy, psychiatric admissions to general hospitals is a substitutive alternative to crisis management, when other psychosocial care services such as mental health services and primary health care (PHC), were not sufficient for the user’s care.(24)

The intervention provided an opportunity to promote self-awareness, a result that makes it an enriching tool for nursing actions for patients with mental disorders in the psychiatric unit environment in general hospitals, which must focus on providing the users with the ability to recognize themselves in their actions.(22) The recognition of oneself
in the psychodynamics of personality disorders was a result pointed out by the subjects, who observed that they were responsible for their symptoms, in particular, for impulsivity. This concept of autonomy and recognition of oneself are affinities based on the knowledge both in alternative and complementary health practices and in the therapeutic interpersonal relationship.\(^{(25,26)}\)

**Conclusion**

Intervention with aromatherapy in psychiatric hospitalization in general hospitals has brought about improvements in many spheres, such as the decrease of anxiety symptoms and the possibility of coping with the mental disorder, and they were accessed through the perception that the user assigned to nursing care and treatment.

**Collaborations**

Domingos TS and Braga EM state that they contributed to study design, result analysis and article writing. Domingos TS performed the intervention and data collection.

**References**

Clinical conditions and health care demand behavior of chronic renal patients

Condições clínicas e comportamento de procura de cuidados de saúde pelo paciente renal crônico

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Abstract

Objective: To identify the clinical conditions and health care demand behavior of chronic kidney patients in the therapeutic itinerary for hemodialysis.

Methods: Qualitative, descriptive and exploratory study based on an interview with ten patients at a renal replacement therapy clinic under hemodialysis treatment and analysis resulting from the use of the Collective Subject Discourse technique, by means of the software qualiquantisofty.

Results: The clinical conditions on the therapeutic itinerary evidenced symptoms of unease and the baseline disease profile identified included hypertensive nephrosclerosis, diabetic nephrosclerosis, undetermined cause and diabetic nephrosclerosis associated with arterial hypertension. The behaviors that negatively affected the health control were the delay to receive care in the health network, the non-acceptance of the disease and the treatment.

Conclusion: Few patients received early monitoring without any sign of symptoms. Nevertheless, the majority were hospitalized suddenly.

Keywords
Nursing care; Public health nursing; Chronic renal failure; Patient acceptance of health care; Qualitative research

Descritores
Cuidados de enfermagem; Enfermagem em saúde pública; Insuficiência renal crônica; Aceitação pelo paciente de cuidados de saúde; Pesquisa qualitativa

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Introduction

The global prevalence of chronic renal disease is estimated at around 8-16% and represents a growing public health problem around the world. In the United States, the incidence and prevalence have doubled in the last 10 years.\(^{(1)}\)

The number of people diagnosed with the disease who have reached the advanced stages and need to start emergency treatment is increasing and in unfavorable conditions for patients and health professionals, as it significantly compromises the quality of the inclusion in and adaptation to the treatment.

This situation arouses the following reflection: - What factors are present in the patient’s therapeutic itinerary that interfere in the diagnosis and treatment?

Therapeutic itinerary is considered as the route the individuals follow in search of health or therapeutic care. The evolution of chronic renal disease is silent and the course is frequently asymptomatic until the advanced stage is reached. As a result, the patient only seeks medical care when one or more complications of the disease and/or comorbidities are already present,\(^{(2)}\) which puts up a greater challenge for professional care.

The therapeutic approach is essential for inter/cross-disciplinary actions and also fundamental for communicative practice oriented towards mutual understanding.\(^{(3)}\) And, when the conduct is early and appropriate to patients with diabetes mellitus, arterial hypertension or chronic renal disease, and articulated among the complexity levels of the health network, this permits retarding the start of dialysis therapy.\(^{(4)}\)

Chronic renal disease has gained alarming proportions.\(^{(4)}\) Brazil has important prevalence and incidence levels of patients under renal replacement therapy, and hypertensive, diabetic and obese patients are considered risk groups for the development of chronic renal disease.\(^{(5,6)}\)

Although the National Primary Health Care Policy considers that all health professionals are responsible for guaranteeing holistic care delivery, highlighting the prevention of problems, a gap remains between the primary and secondary care levels, as obstacles remain for user access which can compromise the comprehensiveness of care.\(^{(5)}\)

At the medium complexity level, specialized diagnostic and therapeutic care is expected, guaranteed based on the referral and counter-referral process of arterial hypertension, diabetes mellitus and kidney disease patients. At the high complexity level, the access to and quality of the dialysis process needs to be guaranteed with a view to achieving a positive impact on survival, morbidity and quality of life.\(^{(6)}\)

It is considered important to know the factors present on the therapeutic itineraries of patients demanding health care, which influence the form of coping with the disease diagnosis as well as with the prescribed treatment. Knowing the itinerary allows us apprehend the interference of the scenario and of the team’s approach and posture in client care.

Thus, the objectives of this research were to identify the clinical conditions and behaviors of kidney patients on their therapeutic itinerary to take part in hemodialysis and to discuss how these data can support nursing interventions.

Methods

Qualitative research developed between January and March 2013 at a private renal replacement therapy clinic accredited by the Unified Health System in the City of Rio de Janeiro, in the Brazilian Southeast.

The research participants were ten patients with chronic kidney disease, corresponding to 70% of the adults from the daytime hemodialysis service, over 18 years of age, male and female, in the first year of hemodialysis treatment, in order to allow them to remind their therapeutic trajectory. Adults without clinical conditions to participate at the moment of the interview were excluded.

Information on the participants’ personal and clinical characteristics was obtained from their patient histories. Next, during the hemodialysis session, an individual interview was held, using semi-structured questions, with a mean length of one...
hour, addressing the therapeutic trajectory, including aspects of professional care at different health institutions until that moment.

In the data analysis and discussion, the Collective Subject Discourse technique was used, by means of the software qualiquantisofy. Based on the methodological figures Key Expressions, Core Ideas and CSD, the essence and meaning of each testimonial could be revealed in one sole collective synthesis discourse.(7)

The reading and rereading of the testimonials and the use of the program devices for data analysis permitted unveiling the meanings the participants attributed, arranged as CSD, as a first approach of the clinical conditions and individual behaviors on the therapeutic itinerary until their inclusion in the hemodialysis.

The study development complied with the Brazilian and international ethical standards for research involving human beings.

Results

The sample consisted of three (30%) male and seven (70%) female patients, with a mean age of 51 years. The baseline diseases identified in the histories indicated 50% hypertensive nephrosclerosis, 20% diabetic nephrosclerosis, 10% undetermined cause and 20% diabetic nephrosclerosis associated with arterial hypertension.

In the testimonials of the recorded interview, it was evidenced that they discovered the kidney disease when they felt bad, starting their care trajectory through the primary care service 30%, hospital 30%, private consultations through the health insurance 20%, adding up 80% of individuals who suddenly started the hemodialysis in an intra-hospital context. The other 20% did not manifest any symptoms, despite periodical monitoring of the baseline diseases at the primary care service, followed by conservative treatment and the start of hospital dialysis. Nevertheless, the kidney problem was detected in a late phase.

As regards the behaviors for care in the health network, two core ideas prevailed as harmful factors for health control. In this respect, 50% were related to the delay in health care, as indicated in the following key expressions: [...] to schedule the first appointment at the primary care service I had to arrive at four a.m. to catch a queue that went already around the block! I had to sleep in the queue to get a number! [...] That’s a massacre for who’s ill! [...] But that’s what we see every day [...]. I kept on waiting all day, I was only attended at night [...].

Another idea 60% of the participants indicated was related to the non-acceptance of the disease and treatment, as evidenced in the key expressions: [...] the main complication was that I did not want to go there to do it! Not have the courage [...], difficulty to accept it [...]. It is horrible to sleep thinking that you have to wake up the next day [...] to go for dialysis, [...] to leave in order to try and survive, [...] go to a machine and depend on it to live, that’s very difficult [...].

Discussion

The results cannot be generalized to the experience of the chronic kidney clients undergoing hemodialysis. Although the method promotes the combination and synthesis of the testimonials in a collective discourse, each of them presents the individual wealth of each participant’s clinical and behavioral conditions on the therapeutic trajectory. These, in turn, constitute singular experiences that contain peculiar and individual characteristics, although they can come up as core ideas in a collective discourse.

The understanding of the patients’ life dynamics contributes to the reflection on nursing care, as it implies considering behaviors related to the coping and adaptation difficulties, besides existing frailties in the professional approach, indicating that the intervention needs to be more precise. And that the act of welcoming, which is so important for these individuals, lies within reach.

To prevent the kidney disease, all patients in the risk group, even if asymptomatic, need an annual assessment. Simple and cheap tests, such as blood, serum creatinine and urine tests to detect protein,
as these are kidney function markers that can be controlled at the primary care level.\(^2\)

The care flow demonstrated that the disease was discovered late, so that the patient needed emergency care. More detailed professional care during the diagnosis avoids coming and going to the health sector and the galloping progression of the disease.\(^8\) The late diagnosis and late visit to the nephrologist indicates that 25.8% of the primary care physicians do not forward patients with characteristic cases of advanced reduction of the kidney function rate to the specialized nephrology service. This signals the risk this situation causes with regard to the morbidity and mortality and the costs related to the complications deriving from inappropriate conducts.\(^4\)\(^-\)\(^6\)

Due to the absence of symptoms in the initial stages of the disease, the health professionals always need to maintain suspicious, mainly in patients with risk factors. This early diagnostic difficulty hampers the opportunity to implement prevention measures, partially due to the lack of knowledge about the definition and classification of the disease stages and the non-use of simple tests for its diagnosis and functional assessment.\(^9\)\(^,\)\(^10\)

Studies indicate that, when patients are attended in the pre-dialysis phase and by an interdisciplinary team, compared to patients who only received traditional medical care, their survival increased by eight months after they started dialysis.\(^11\)

And the care this team delivers grants the patients satisfactory clinical results when in therapy and reduces the frequency of emergency dialysis, the occurrence of hospitalizations and the mortality rate.\(^12\)\(^,\)\(^13\) For that purpose, the health service team, within its own care logic, in order to attend to the patients’ needs to a certain extent and in a certain way, should stimulate their autonomy in view of their new health condition.\(^14\)

The diagnosis was evidenced as a difficult phase of coping with the disease and the constraints the treatment imposes. Nevertheless, the support, respect and attention the health professionals granted to these patients were highlighted as a professional competence and a factor that makes things easier. The professionals should know and identify them based on the behaviors, so as to help them cope with their current condition and relieve their tensions and fears. In addition, it permits a more focused intervention that can impede/prevent future complications.\(^15\)

Despite the thoughtful care and, sometimes, lack of welcoming in hospital care, overcrowded emergencies, which are constant in Rio de Janeiro and cause a low level of problem-solving ability of primary care and a precarious hospital network, leading to uncertainties and/or fears with regard to the accomplishment of the treatment.\(^16\)\(^,\)\(^17\)

The characteristics of the emergency service, as the patient’s main entry door to the services, make it difficult to maintain individual privacy in view of the many patients attended and procedures. Sharing actions can be an additional stressor for the patient, already aggravated by the diagnosis and the unstable clinical condition. This influences and hampers patients’ coping with the chronic kidney disease and their adaptation to the renal replacement therapy.\(^18\)

Effective communication is the first step towards good welcoming and, in a way, when well used, it can mitigate the infrastructure problems they describe. This approach has been documented as a key point in care, with great potential to damage or benefit the patient. Approximately 63% of the sentinel events are directly linked to communication errors.\(^19\)

The second limitation, of the personal type, was the difficulty to accept the disease and the treatment. The factors that influence the compliance with treatment are trust in the team, support networks, acceptance of the disease; while the hindering factors are non-acceptance of the disease/treatment and insecurity.\(^20\)

Denial can be related to insecurity and all other factors identified as limiting. At the start of the treatment, the prevalence of anguish and depressive symptoms is significant, hampering the adaptation. Therefore, more extensive and active psychological care needs to be considered still during the pre-dialysis phase.\(^17\)
This limitation can be closely related with the short time between the diagnosis and the start of the treatment. When the start of the dialysis is not an unexpected event, 85% have time to get to grips with the disease, imagine what it would be like to live with dialysis and prepare well to start the treatment, through monitoring in nephrology consults for six months before the dialysis.²¹

On the other hand, a downward trend was observed in the negative feeling over time, indicating that the patients felt less concerned and less inclined to cry at the end of the first year after starting the treatment.²¹

As the treatment negatively affects the patients’ social and family relations and physical-psychological condition; and the stress, anguish and depression many of them go through stem from the lack of information about the disease, their treatment and life expectancy, there is an urgent need for changes in the elaboration of approach strategies.

The health team working in dialysis therapies and mainly in conservative treatment needs to get structured to cope with the problems that emerge among the clients in their respective activity areas, in order to start changing this reality.¹³

The nurses are responsible for monitoring and helping the patients in the process of coping with the disease, surveillance and monitoring of therapeutic targets and strengthening of the health care systems.²²

In addition, they need to heed all aspects surrounding these patients with a view to respecting the limits of each individual, as their know-how needs to be integrated, in which the care is based on a committed, responsible and sincere relationship of trust between professionals and users.²³

As the third limiting factor on the trajectory, the delay to get care demonstrated that the organization of this system is permitting a larger demand than supply at the nephrology service. This hampers the access to the treatment and contributes to the late start; affects the choice of the therapy that best attends to them; and results in a lag in the orientations received, insecurity and non-acceptance of the disease and the health condition.

A better access to health care has been associated with a better treatment and control of hypertension and diabetes, a potential mechanism through which the incidence of chronic kidney disease could be avoided.²⁴

This therapeutic retrospective of successes and errors, fear, facilities and difficulties permitted attributing a new meaning to postures and conducts in coping with the disease and treatment and the steps and mismatches common to patients in the health network. These support professional actions that make the therapy more effective.

**Conclusion**

Most participants started their care trajectory through the public health network. The clinical conditions during the therapeutic itinerary evidenced symptoms of feeling ill and the advanced clinical profile of the baseline diseases.

The behaviors negatively affected the health control because of the delay to get care in the health network, the non-acceptance of the disease and the treatment. Few participants were periodically monitored for the baseline diseases at a primary care service and did not manifest symptoms. Nevertheless, most of them were hospitalized in emergency situations.

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**Collaborations**

Torchi TS contributed to the project conception, execution of the research and writing of the paper. Araújo STC contributed to the project conception, writing of the paper and relevant critical review of intellectual content. Moreira AGM, Koeppe GBO and Santos BTU cooperated with
the writing of the article and final approval of the version for publication.

References


Prevalence of risk behaviors in young university students

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Leides Barroso Azevedo Moura1

Abstract

Objective: To assess the prevalence of risk behaviors in young university students.

Methods: Cross-sectional study carried out with 210 university students aged between 18 and 24. The applied research instrument was a validated questionnaire called National College Health Risk Behavior Survey. Data were analyzed using descriptive statistics, bivariate analysis and logistic regression.

Results: Among the studied individuals, 40% ingested alcohol, 25% were overweight, 19% used motorcycles as a means of transportation, and 6% reported suicide attempts. Alcohol consumption, overweight and practicing sports were associated with men. Suicide attempts and healthier eating habits were associated with women.

Conclusion: Participants adopted behaviors that risked their health status, being such attitude more frequently observed among men. Alcohol consumption was the most prevalent risk behavior in this population.

Keywords
Prevalence; Risk-taking; Universities; Young adult; Ethics

Descritores
Prevalência; Assunção de risco; Universidades; Adulto Jovem; Ética

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Prevalence of risk behaviors in young university students

Introduction

Health-risk behaviors adopted by university students have been assessed worldwide. Recent studies aimed at comprehending, controlling and monitoring such behaviors point out their high prevalence reflected on sedentary habits, eating disorders, traffic accidents, consumption of tobacco, alcohol and other drugs, and violence against oneself and others. (1-5) Wang et al. observed a high percentage of university students who presented unhealthy lifestyles. The researchers stood up to defend the need for taking social and territorial contexts into account in the preparation of plans toward minimizing the morbidity-mortality loads caused by non-transmissible chronic diseases, as well as the need for improving the quality of life of this population by means of regional development programs of healthcare education that may mitigate social-spatial inequalities. (6)

In Brazil, violence has become a public healthcare challenge as a result of the high morbidity-mortality rates originated in the adoption of risk behaviors, such as consumption of alcoholic beverages and illicit drugs, as well as the broad availability of fire guns and the lack of adequate infrastructure of the traffic system. (7)

It is possible that young students entering the university adopt health-risk behaviors in detriment of the commitments related to the dynamics of the academic life, in such a way that their lifestyles are modified. (8) The entrance of the student in the university overlaps periods in which values, beliefs, autonomy and the establishment of limits by parents are questioned. In Portugal, a research involving university students showed that the educational level was not a protection factor in choosing healthy conducts among young Portuguese university students. Veteran students, who have been experiencing the academic life for a longer period, display significant proportions of risk factors for non-transmissible chronic disease, in comparison with students who have recently entered college. (9)

The number of Brazilian students enrolled in higher education institutions has been steadily growing, and the expansion of the university population represents an opportunity to identify health-risk behaviors. Additionally, very few studies related to health-based behaviors among young university students in the Midwest region of Brazil, and especially in the Federal District and its surroundings, have been produced. In face of the aforementioned introduction, the objective of the present study was to identify the prevalence of health-risk behaviors in young university students.

Methods

This cross-sectional study was carried out with 210 young university male and female students, with ages ranging from 18 through 24, in a higher education institution located in Brasília, in the central region of Brazil.

The data collection instrument is part of the National College Health Risk Behavior Survey, elaborated by the Centers for Disease Control and Prevention (CDC), and which has the aim to monitor health-risk behaviors among American adolescents and youngsters. The questionnaire includes: sociodemographic data (sex, self-declared skin color, age group, period taken in the university, and body mass index); issues addressing risk behaviors concerning young people as college students (driving behaviors; violence against oneself and third parties; consumption of substances such as tobacco, alcohol, inhalants, marijuana; weight control, eating habits, and practice of physical activities).

Data were processed with the aid of the Statistical Package for the Social Sciences (SPSS, version 22), and analyzed using descriptive statistics, Pearson’s Chi-Square test and logistic regression tests.

The development of this study complied with national and international ethical guidelines for research involving human subjects.

Results

The study was composed of 210 young adults who responded the questionnaire, corresponding to 71%
of the university students enrolled in the institution during the period of the research.

The mean age of the participants was 21.35 years old (standard deviation of 1.7555), being the youngest 18 and the oldest 24 years old. There was a predominance of female participants, 128 (61%) students. There was also a predominance of respondents who self-declared being white. The group with the largest amount of respondents was the one comprised of first-year students (first and second semesters), totaling 83 (40.3%) students. The number of students in the initial periods who responded to the questionnaire was predominantly higher than in all other periods.

Table 1 presents health-risk behaviors among students by sex and self-declared skin color/ethnic group.

Although other significant statistical correlations were not detected, men displayed a higher percentage (29; 19.1%) regarding driving a motorcycle and not making use of a helmet (7; 3.3%). Behaviors related to self-aggression or aggression of third parties presented low results, even though they showed slightly higher patterns among women who had attempted suicide (12; 9.4%), thus generating a significant statistical correlation (p-value =0.018) (Table 1).

Alcohol consumption was very high among students (82; 40.0%), with a marked percentage among men (42; 51.9%), and presenting a significant difference (p-value = 0.006) (Table 1).

Black and indigenous categories showed the highest occurrence of risk behaviors: passengers who did not use the seat belt (1.210), who drove a motorcycle (1.083), suicide attempts (0.0118) (Table 1), and provoked vomit/use of laxatives (1.832), ingestions of diet pills (1.078), and overweight (1.114) (Table 2).

Even though higher overweight results were found among men (32; 60.3%), there was also a higher participation of men in sports activities in the seven previous days (56; 68.2%), which generated a statistical correlation (p-value =0.001) (Table 2).

High results regarding healthier eating habits were found among women, although there were reports on diets toward losing or maintaining weight (58; 45.3%). Nevertheless, regarding eating fruits or drinking fruit juice (in the previous day, between one and three times), a significant difference was observed between sexes (p-value =0.007) (Table 2).

### Table 1. Health risk behaviors among students by sex and self-declared skin color/ethnic group

<table>
<thead>
<tr>
<th>Risk behavior</th>
<th>Total n(%)</th>
<th>Gênero</th>
<th>p-value</th>
<th>Odds ratio*</th>
<th>Self-declared skin color/ethnic group</th>
<th>p-value</th>
<th>Odds ratio**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male n(%)</td>
<td>Female n(%)</td>
<td></td>
<td></td>
<td>White n(%)</td>
<td>Black n(%)</td>
<td>Indigenous n(%)</td>
</tr>
<tr>
<td>Traffic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger did not make use of seat belt</td>
<td>9(4.3)</td>
<td>4(4.9)</td>
<td>5(3.9)</td>
<td>0.740</td>
<td>1.251</td>
<td>5(4.1)</td>
<td>3(4.8)</td>
</tr>
<tr>
<td>Driver did not make use of seat belt</td>
<td>4(2)</td>
<td>2(2.4)</td>
<td>1(1.6)</td>
<td>0.644</td>
<td>1.575</td>
<td>3(2.4)</td>
<td>1(1.6)</td>
</tr>
<tr>
<td>Use of motorcycle</td>
<td>29(19.1)</td>
<td>16(27.6)</td>
<td>13(13.8)</td>
<td>0.055</td>
<td>2.374</td>
<td>16(19.0)</td>
<td>8(16.3)</td>
</tr>
<tr>
<td>Use of motorcycle without the protection of a helmet</td>
<td>7(3.3)</td>
<td>4(4.9)</td>
<td>3(2.3)</td>
<td>0.089</td>
<td>2.137</td>
<td>5(4.0)</td>
<td>2(3.2)</td>
</tr>
<tr>
<td>Self-aggression or aggression against others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bearing of weapons</td>
<td>9(4.3)</td>
<td>2(2.4)</td>
<td>7(5.5)</td>
<td>0.487</td>
<td>0.429</td>
<td>7(5.7)</td>
<td>- (0.0)</td>
</tr>
<tr>
<td>Involvement in fights</td>
<td>4(1.9)</td>
<td>- (0.0)</td>
<td>4(3.2)</td>
<td>0.155</td>
<td>-</td>
<td>3(2.4)</td>
<td>1(1.6)</td>
</tr>
<tr>
<td>Suicide attempts</td>
<td>1(0.6)</td>
<td>1(1.2)</td>
<td>12(9.4)</td>
<td>0.018</td>
<td>0.118</td>
<td>7(5.7)</td>
<td>5(7.9)</td>
</tr>
<tr>
<td>Consumption of substances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habitual consumption of cigarettes</td>
<td>5(2.5)</td>
<td>3(3.8)</td>
<td>2(1.6)</td>
<td>0.383</td>
<td>2.368</td>
<td>2(1.6)</td>
<td>2(3.3)</td>
</tr>
<tr>
<td>Consumption of marijuana</td>
<td>4(2.0)</td>
<td>1(1.2)</td>
<td>3(2.4)</td>
<td>1.000</td>
<td>0.515</td>
<td>3(2.4)</td>
<td>1(1.6)</td>
</tr>
<tr>
<td>Risky consumption of alcohol</td>
<td>2(0.4)</td>
<td>1(1.2)</td>
<td>1(1.2)</td>
<td>0.006</td>
<td>2.262</td>
<td>4(0.9)</td>
<td>24(38.1)</td>
</tr>
<tr>
<td>Consumption of inhalants</td>
<td>8(7.8)</td>
<td>8(10.1)</td>
<td>6(6.3)</td>
<td>0.423</td>
<td>1.678</td>
<td>11(8.9)</td>
<td>1(1.6)</td>
</tr>
</tbody>
</table>

* Reference category: male; ** Reference category: black/indigenous
Violent and aggressive behaviors against oneself or third parties related to the bearing of guns, involvement in fights and suicide attempts were predominant among women. Another research indicated higher frequencies of these behaviors in men, except for the suicide attempts.\(^1\)

In agreement with other studies, reports on suicide attempts reached higher frequencies among female students.\(^{12,13}\) A study also mentions some factors related to the suicide risk, such as generalized anxiety disorder (bipolar disorder and depressive episodes), traffic accidents, fights with physical aggression, low confidence level regarding communication with parents, alcohol and tobacco consumption, sexual assault, and depression symptoms.\(^{14}\)

Behaviors related to traffic safety displayed significant results, and gave proof to the overall approval of the use of the seat belt and helmet by drivers. This study showed a higher frequency of male students as motorcycle drivers.

**Discussion**

This study was limited by the fact that 1) it was carried out in a single institution, although it was the only educational institution in that location; and 2) its cross-sectional design did not allow for the establishment of cause and effect correlations.

The findings showed that the risk behaviors adopted by university students were: alcohol consumption, use of motorcycles as a means of transportation, suicide attempts, overweight, and unhealthy eating habits.

The study also showed that the consumption of alcohol was more frequent among male students. Previous studies show that the pressure exerted by academic demands, the need for being part of a group, the accessible price of alcoholic beverage, and the lack of prohibition of alcohol consumption in the college environment were some of the causes related to the alcohol consumption patterns among university students.\(^{10,11}\)

### Table 2. Health behaviors by sex and self-declared skin color

<table>
<thead>
<tr>
<th>Health behaviors</th>
<th>Total n (%)</th>
<th>Gender</th>
<th>p-value</th>
<th>Odds ratio*</th>
<th>Self-declared skin-color/ethnic group</th>
<th>p-value</th>
<th>Odds ratio**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body mass index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>136(64.7)</td>
<td>45(33)</td>
<td>91(66.9)</td>
<td>0.001</td>
<td>1.689</td>
<td>84(61.7)</td>
<td>40(29.4)</td>
</tr>
<tr>
<td>≥25</td>
<td>53(28)</td>
<td>32(62.3)</td>
<td>21(39.6)</td>
<td></td>
<td></td>
<td>27(54)</td>
<td>16(32)</td>
</tr>
<tr>
<td>Self-perception of body weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Way below weight</td>
<td>11(5.3)</td>
<td>1(1.25)</td>
<td>10(7.8)</td>
<td>0.18</td>
<td>0.650</td>
<td>7(5.6)</td>
<td>2(3.1)</td>
</tr>
<tr>
<td>Slightly below weight</td>
<td>14(6.7)</td>
<td>9(11.2)</td>
<td>5(3.9)</td>
<td></td>
<td></td>
<td>10(8)</td>
<td>2(3.1)</td>
</tr>
<tr>
<td>Right weight</td>
<td>120(57.9)</td>
<td>40(33.3)</td>
<td>80(66.7)</td>
<td></td>
<td></td>
<td>73(58.8)</td>
<td>41(33.3)</td>
</tr>
<tr>
<td>Slightly above weight</td>
<td>54(26.0)</td>
<td>26(32.5)</td>
<td>28(22.8)</td>
<td></td>
<td></td>
<td>31(25)</td>
<td>16(25.3)</td>
</tr>
<tr>
<td>Way above weight</td>
<td>8(3.8)</td>
<td>4(5)</td>
<td>4(3.1)</td>
<td></td>
<td></td>
<td>3(2.4)</td>
<td>2(3.1)</td>
</tr>
<tr>
<td>Attempts to cause the body to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lose weight</td>
<td>87(42.4)</td>
<td>33(42.3)</td>
<td>54(42.5)</td>
<td>0.313</td>
<td>1.35</td>
<td>55(44.3)</td>
<td>30(47.6)</td>
</tr>
<tr>
<td>Gain weight</td>
<td>43(20.9)</td>
<td>21(26.9)</td>
<td>22(17.3)</td>
<td></td>
<td></td>
<td>28(22.9)</td>
<td>11(17.4)</td>
</tr>
<tr>
<td>Maintain the same weight</td>
<td>44(21.4)</td>
<td>13(16.6)</td>
<td>31(24.4)</td>
<td></td>
<td></td>
<td>23(18.5)</td>
<td>13(20.6)</td>
</tr>
<tr>
<td>Not attempting anything</td>
<td>31(15)</td>
<td>11(14.1)</td>
<td>20(15.7)</td>
<td></td>
<td></td>
<td>18(14.5)</td>
<td>9(14.2)</td>
</tr>
<tr>
<td>Weight control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet to lose or maintain weight</td>
<td>83(39.9)</td>
<td>25(31.2)</td>
<td>58(45.3)</td>
<td>0.44</td>
<td>0.795</td>
<td>42(33.8)</td>
<td>28(44.4)</td>
</tr>
<tr>
<td>Provoked vomit or use of laxatives</td>
<td>16(7.7)</td>
<td>2(2.5)</td>
<td>14(10.9)</td>
<td>0.031</td>
<td>0.206</td>
<td>7(5.6)</td>
<td>4(6.5)</td>
</tr>
<tr>
<td>Diet pill</td>
<td>18(8.6)</td>
<td>7(8.6)</td>
<td>11(8.6)</td>
<td>1.000</td>
<td>1.000</td>
<td>10(8.1)</td>
<td>5(8.1)</td>
</tr>
<tr>
<td>Physical exercises to lose or maintain weight</td>
<td>82(39.4)</td>
<td>36(43.9)</td>
<td>46(36.5)</td>
<td>0.313</td>
<td>1.305</td>
<td>47(37.9)</td>
<td>24(38)</td>
</tr>
<tr>
<td>Sports activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in sports activities in the previous 7 days</td>
<td>103(49)</td>
<td>56(68.2)</td>
<td>47(36.7)</td>
<td>0.001</td>
<td>1.996</td>
<td>57(45.9)</td>
<td>38(50.9)</td>
</tr>
<tr>
<td>Walked or used a bike for at least 30-60 minutes in the previous 7 days</td>
<td>100(47.6)</td>
<td>44(53.6)</td>
<td>56(43.7)</td>
<td>0.161</td>
<td>1.214</td>
<td>64(51.6)</td>
<td>28(44.4)</td>
</tr>
<tr>
<td>Eating habits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ate fruits or drank fruit juice (yesterday, yes, between 1-3 times)</td>
<td>168(80)</td>
<td>58(70.7)</td>
<td>110(85.9)</td>
<td>0.007</td>
<td>0.480</td>
<td>95(76.6)</td>
<td>53(84.1)</td>
</tr>
<tr>
<td>Ate green salad (yesterday)</td>
<td>147(70)</td>
<td>52(63.4)</td>
<td>95(74.2)</td>
<td>0.096</td>
<td>0.705</td>
<td>82(66.6)</td>
<td>49(77.7)</td>
</tr>
<tr>
<td>Ate boiled vegetables (yesterday)</td>
<td>134(63.8)</td>
<td>46(58)</td>
<td>88(68.7)</td>
<td>0.063</td>
<td>0.712</td>
<td>78(62.9)</td>
<td>39(61.9)</td>
</tr>
</tbody>
</table>

Among men, the study pointed out higher occurrences of sports practices; among women, on the other hand, healthier eating habits were found. Such findings agree with other studies in which female participants were found more likely to have healthier eating habits and lower interest for physical activities.\(^5,\^15\) A research with Spanish college students showed that women were less active and had a more sedentary lifestyle than men and therefore the realization of specific intervention actions for women was recommended.\(^5\) Data pointing out that college students who live with their families had better nutritional habits have also been found, and that those enrolled in the first year of college tend to present improved health behaviors when compared with students in subsequent periods.\(^15\)

As for the overweight, this study observed a higher percentage of cases in comparison with the findings among American university students. The causes for the overweight and obesity were the eating disorders and lack of physical activity during the academic life.\(^16\)

The findings suggest that new health behavior patterns regarding the sex, skin color/ethnic group of university students have become a reality to be dealt with by the university.

Optimistic young university students tend to adopt health-risk behaviors and therefore an articulation between the positive psychology and the preventive education of health-risk behaviors should be inserted into the undergraduate curriculum of higher education institutions.

**Conclusion**

The participants adopted health-risk behaviors, being such attitude more frequent among male students. Alcohol consumption was the most prevalent risk behavior in this population.

**Collaborations**

Faria YO; Gandolfi L and Moura LBA contributed to the project conception, analysis and data interpretation, relevant critical review of its intellectual content and final approval of the version to be published.

**References**


