PERFORMANCE OF NURSING AUXILIARIES AND TECHNICIANS IN MANAGING PIERCING CUTTING MATERIAL: A NECESSARY STUDY

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This study aimed to analyze the knowledge of nursing auxiliaries and technicians in handling and disposing of piercing-cutting material and describe their performance. This qualitative-descriptive research was carried out with three nursing auxiliaries and 12 technicians at a medium-size hospital, totaling 15 participants interviewed through a semi-structured script. Discourse was analyzed through the content analysis technique. Results appoint that, even though the participants have theoretical knowledge on the management of piercing-cutting material, they do not totally follow their knowledge, which exposes them to several biological risks, revealing reproductive knowledge and performance. Thus, we propose the implementation of continuing education programs based on constructivist methodological approach aiming at effective practices in the management and disposal of piercing-cutting material. In this perspective, research clarifying how adults apprehend knowledge can deepen the results described in the study.

DESCRIPTORS: knowledge; medical waste; education, nursing

ACTUACIÓN DE AUXILIARES Y TÉCNICOS DE ENFERMERÍA EN EL MANEJO DE PUNZOCORTANTES: UN ESTUDIO NECESARIO

El presente estudio tuvo como objetivo analizar el conocimiento del equipo de auxiliares y técnicos de enfermería en el manejo y separación de punzocortantes, describiendo la actuación de esos profesionales. Se trata de estudio cualitativo descriptivo, cuyos sujetos fueron tres auxiliares y doce técnicos de enfermería de una institución de salud de porte medio, totalizando quince sujetos entrevistados por medio de guión semiestructurado. El análisis de los relatos fue realizado por la técnica de análisis de contenido. Los resultados apuntaron que, a pesar de que los sujetos poseen conocimientos teóricos sobre cuidados con punzocortantes, ellos no los utilizan integralmente, exponiéndose a diversos riesgos, lo que revela conocimiento y actuación que se repite. Se propone, aquí, la implementación de programas de educación continuada, basados en abordajes metodológicos constructivistas, con el objetivo de obtener una práctica eficaz en el manejo y separación de punzocortantes. De esa forma, las investigaciones que aclaren la aprehensión del conocimiento por adultos pueden profundizar los resultados descritos en este estudio.

DESCRIPTORES: conocimiento; residuos de hospitales; educación en enfermería

ATUAÇÃO DE AUXILIARES E TÉCNICOS DE ENFERMAGEM NO MANEJO DE PERFUROCORTANTES: UM ESTUDO NECESSÁRIO

O presente estudo teve como objetivo analisar o conhecimento da equipe de auxiliares e técnicos de enfermagem no manejo e segregação de perfurocortantes, descrevendo a atuação desses profissionais. Trata-se de estudo qualitativo descritivo, cujos sujeitos foram três auxiliares e doze técnicos de enfermagem de uma instituição de saúde de médio porte, totalizando quinze sujeitos entrevistados por meio de roteiro semiestruturado. A análise dos depoimentos foi realizada pela técnica de análise de conteúdo. Os resultados apontaram que, embora os sujeitos tenham conhecimentos teóricos sobre cuidados com perfurocortantes, eles não os utilizam, integralmente, expondo-se a diversos riscos, o que revela conhecimento e atuação reprodutivistos. Propõe-se, aqui, implementação de programas de educação continuada, baseada em abordagens metodológicas construtivistas, visando a prática eficaz no manejo e segregação de perfurocortantes. Dessa forma, pesquisas que esclareçam a apreensão do conhecimento por adultos podem aprofundar os resultados descritos neste estudo.

DESCRITORES: conhecimento; resíduos de serviços de saúde; educação em enfermagem

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INTRODUCTION

Current Brazilian prerogatives related to the management of solid residues establish that the production of waste up to its final destination is the responsibility of the institution that produces it. These institutions have to present a Healthcare Waste Management Plan, which needs to be submitted to the appreciation of responsible offices. Healthcare solid waste is classified in groups identified by letters. Due to its importance, piercing-cutting material occupies a specific group denominated group E[1].

Among the occupational risks related to the management of piercing-cutting waste contaminated by biological material, the following stand out: hepatitis B risk of about 30%; hepatitis C risk of 3%; and AIDS, transmitted by HIV virus with risk of 0.3%. Regarding the frequency of accidents, percutaneous inoculation is the most evident and represents one third of all accidents, whose main events are: recapping of needles and intravenous catheters and inadequate disposal of piercing-cutting material thrown in common trash, or in incorrectly assembled sharps disposal boxes[2].

In the hospital context, exposure to occupational risks and work accident-related injuries is higher in the nursing team because of 24-hour contact with patients, delivering care[3] in a practical perspective.

An additional study addressing accidents involving nursing professionals and piercing-cutting material may seem unnecessary since there are several studies on the characterization of workers contaminated by accidents and related disorders[4-5], as well as continuing education practices focusing on knowledge of standard precautions[6-7], which shows the theme's relevance.

However, studies addressing the performance of nursing professionals and the construction of their knowledge on the management of piercing-cutting material are scarce. "Health workers know the risks posed to their health in a generic way [...] which points to the need for a strategy to change this situation"[8].

Therefore, this study is justified by the need to understand adequate management of piercing-cutting material, reduction of accident frequency and risks of infectious diseases, in addition to environmental problems, contributing to the knowledge construction of nursing professionals as from their daily practice.

In this perspective, nursing auxiliaries' and technicians' performance and knowledge on the theme were investigated, mainly because they reflect the performance of nursing professionals in the process of knowledge construction.

The overall study perspective is focused on continuing education of nursing professionals and its connection with knowledge acquired on the management of piercing-cutting material, aiming to relate these results with current findings in the area of Adult Education. "Adults' continuing education has increasingly valued modalities that favor people's abilities to construct their own knowledge as from the review of their own attitudes and values based on their learning"[9].

Therefore, the results presented are based on the following questions: what is the performance of nursing auxiliaries and technicians in the management of piercing-cutting material? What is the knowledge of nursing auxiliaries and technicians on the handling and disposal of piercing-cutting material? The goal is to analyze the knowledge of nursing auxiliaries and technicians in the handling and disposal of piercing-cutting material and describe their performance.

METHODOLOGICAL PROCEDURES

This qualitative-descriptive study was submitted to and approved by the Research Ethics Committee at the NOVAFAPI, initially based on a bibliographic research on the management of piercing-cutting material, focusing on the performance of nursing auxiliaries and technicians.

The study was carried out at the medium-size children's Hospital Lucídio Portela, reference in pediatrics and located in the Mid-South of Teresina, Piauí, Brazil. The hospital has 86 beds for hospitalization through the Brazilian Unified Health System (SUS). Its staff includes 172 nursing workers, namely: 28 nurses, 44 nursing technicians, 70 nursing auxiliaries and 21 attendants.

The study participants were randomly selected among the nursing auxiliaries and technicians. Three auxiliaries and 12 nursing technicians accepted to participate in the study, totaling 15 interviewees, denominated as follows: - auxiliary (from A1 to A3) and nursing technician (from T1 to T12). Data were collected through semi-structured interviews carried

out by the researchers from September to November 2006. Interviews were tape-recorded after participants' previous consent* and transcribed as accurately as possible, respecting the authenticity of spontaneous dialog.

Collected data were sorted and two general categories and respective subcategories emerged. The analysis followed the theoretical framework of content analysis, including the following phases: "pre-analysis, material exploration, treatment of obtained results and interpretation"[10].

The first category, *nursing team's performance in the management of piercing-cutting material*, described the way nursing auxiliaries and technicians handle piercing-cutting waste according to the participants' theoretical-practical knowledge. The following subcategories were generated: care in the management of piercing-cutting material and disposal of piercing-cutting waste by the nursing team.

The category *nursing team's knowledge on the management of piercing-cutting material* was about aspects related to information incorporated in the management of piercing-cutting waste and their performance with this material, generating the following subcategories: the meaning of piercing-cutting material for the nursing team and management of piercing-cutting material: proposals to improve practice.

RESULTS AND DISCUSSION

The nursing team's performance in the management of piercing-cutting material

Aiming to characterize the performance of nursing auxiliaries and technicians in the management of piercing-cutting material, we discussed the way this material is handled, relating it not only to the importance these individuals attribute to its disposal but also to the Ministry of Health recommendations on its adequate management.

In this perspective, it is pertinent to describe the profile of the studied individuals according to the parameters age, gender, time of work and education, namely: 53.4% were between 35 and 45 years of age; 33.3% between 45 and 55 years; and 13.3% between 25 and 35 years, with predominance of the female gender (86.7%). Regarding time of work at the institution, 46.7% had worked there between 20 and 30 years; 40.0% between 10 and 20 years; and only 13.3% between 0 and 10 years. In terms of education, 74.4% of the participants had finished secondary school and 26.6% had a bachelor's degree.

The Ministry of Health recommendations on the handling and disposal of piercing-cutting waste were used in the subcategory *care in the management of piercing-cutting material* as parameters of analysis, so as to compare participants' answers on the care taken to adequately manage piercing-cutting material. A total of 46.7% of the participants reported *not recapping needles* (T1, T2, T4, T5, T6, T10, T12) and 73.3% reported *separating and discarding piercing-cutting material in a sharps disposal box* (T1, T2, T3, T5, T8, A2, T7, A3, T9, T10, T12).

The adoption of standard precautions aims to minimize risks of accidental exposure and emphasizes specific care during the handling and disposal of piercing-cutting waste. The majority of measures was mentioned in the obtained answers.

Among the recommendations to be complied with, the following stand out: paying maximum attention during procedures, not using finger as shield, not recapping, twisting or removing needles with hands, not using needles to hold papers and discarding any piercing-cutting material in lidded container resistant to perforation[11].

The mere mention of these measures, however, does not necessarily indicate this practice in the work routine of the studied nursing auxiliaries and technicians. This fact is observed in statements reporting neglect in the use of gloves and recapping of needles and scalps, as can be observed in the following statements: *I have the habit of recapping, though I know it's wrong. We, who work with patients in the daily routine, didn't adapt to the use of gloves yet, especially in vein puncture (A2). We know we can't do it, but forget. Cannot recap needles, scalp, cannot throw it in ordinary trash, have to put it in container specific for it* (T5).

Most piercing-cutting accidents occur when these measures are neglected, that is, during inadequate discarding and recapping of needles and

*The free and informed consent term was signed by all studied individuals according to Decree nº 93933, issued on January 14th 1987, Resolution 196/1966 of the National Health Council that establishes Guidelines and Regulatory Standards for Research involving with Human Beings, aiming to assure subjects the right to authorize, without coercion, the use of their statements in studies or even withdraw their participation at any time, characterizing individuals' voluntariness in collaborating with research.

scalps. This procedure violates standard precautions. Nursing auxiliaries and technicians are appointed in this case as those who most frequently perform this procedure inadequately[3].

In the subcategory *discarding of piercing-cutting material by the nursing team*, which refers to the care with the sharps disposal box, 60% of participants affirmed *following the recommendation not to exceed the filling limit* (T3, A2, T4, T6, T7, A3, T10, T11, T12) and 66% reported *adequate assembling and closing of the sharps disposal box* (A1, T1, T2, T3, T5, T7, A3, T8, T9, T10). When these measures are performed, they contribute to adequate management.

It is important, however, to heed to the fact that piercing-cutting waste should be separately discarded where it is generated right after its use or in case it needs to be discarded. Rigid and lidded containers, resistant to perforation and appropriately identified, should be used. The completion of the container should not exceed 2/3 of its capacity and it is expressly forbidden to empty it for reuse[12].

Another important fact is related to the availability of disposal boxes used for discarding piercing-cutting waste. Most times, they are not readily available for replacement in places of easy access, which leads to filling them above established limits[3].

The difficult access to sharps disposal boxes for ready replacement, as well as their incorrect assembly without placing internal reinforcements or plastic bags, increases the risk of percutaneous exposure due to the box overcrowding and fragility caused by inadequate assembly[13].

Conflicting situations related to the filling limits of the disposal boxes were observed among participants. Despite their claim that boxes should not be overcrowded, there were doubts regarding their limits, as can be inferred by the following statement*: I'm not really sure, I've heard that you have to close it when it's half full* (T3).

However, later on, the same interviewee reports that all instructions related to the disposal box assembling and filling limit are listed on the box itself and comments: *[...] there's a "little instruction" on the box telling how to close it. I guess that anyone who knows how to read has no hard time, unless you don't want to have the work to read* (T3). We observed that, despite the interviewee's awareness that the box contained instructions, she contradicted herself.

We also perceived the distancing of nursing professionals from the disposal box and the importance of disposing it, as illustrated in the following discourse when A3 refers to it as an object distant from her practice, evidenced by the term "that". *I don't know how to assemble that box, but I guess you have to be careful to assemble it really right [...] our group failed on the competition because we didn't know how to assemble the box* (A3).

The frequency of incorrectly assembled disposal boxes exposes professionals to accidental risks in practice, as expressed by the following statements: *the most common thing that happens at this hospital is that people exceed, a lot, the volume of contaminated material. I see colleagues getting a syringe, pulling the plunger, and forcing it into the box, I find it dangerous* (T6). *Some colleagues get a syringe and get like [...] (shows how) "forcing it", sometimes it's really laziness of getting and assembling another box, or because they don't know how to assemble it* (A3).

These attitudes reveal that, even though institutions encourage continuing education and competitions, and instructions are also available on the container itself, professionals are not incorporating the knowledge necessary for effective practices. Occupational risks have been underestimated because professionals know most recommendations for adequate management of piercing-cutting material. In practice, however, they do not properly value the most important step of the process: its disposal, which contributes to a significant increase in the risk of accidents.

The nursing team's knowledge on the management of piercing-cutting material

In this item, the study focuses on professionals' knowledge about the handling and disposal of piercing-cutting material, based on the meaning nursing auxiliaries and technicians attribute to its residues, so as to verify the level of incorporation of specific knowledge, the participants' education and contribution of continuing education.

In terms of care delivery, nursing technicians have the responsibility, during their professional practice, not to pose risks to themselves, to the health team and to clients, through the use of biosafety protocols[14]. In this perspective, issues related to workers' health and to general principles of biosafety are addressed in the subjects Health Promotion and Occupational Safety and Biosafety Promotion in Health Actions, with 30 and 40 hours, respectively, in the curricula of the Nursing Technician Course[15].

Concepts and the classifications of Resolutions n. 306 and n. 358 were used in the subcategory: *meaning of piercing-cutting waste* so as to compare them with participants' answers on their understanding regarding piercing-cutting waste[1,16]. The following results were obtained: *it's material that cuts and pierces, such as scalpel blades, needles, glass and others* (T1, T2, T8, T11); *they are needles, scalpel blades, razor, glass and glass slides* (T3, T5, T6, T7, T9, T10, T12); *material that causes accidents* (A2, T4, A3, T12); *these residues are remnants of blood, secretions within the needle or the scalpel blade* (A1).

We observed during the analysis of answers that only 26.7% of the participants defined piercing-cutting waste, 46.7% were able to exemplify it, 26.6% associated them to the risk of contamination and accidents. A1 specifically confounded it with organic matter. This way, we perceived that the majority of the individuals has some notion of piercing-cutting material, notion of conceptualization, exemplification or relation with occupational exposure.

In the subcategory: *piercing-cutting management: proposals to improve practice*, we aimed to identify the individuals' knowledge on the handling of piercing-cutting waste through suggestions that can contribute to the improvement of their performance. The reports are: *using gloves* (A1, A2, T8)*; more information* (T2, A2, T4, T5, A3, T9)*; disposal box at the nursing ward* (T3, T8)*; ideal place only for vein puncture* (T3, T12)*; more attention* (A2, T6); *greater awareness* (A2, A3); *more care* (T5, T6)*; taking risks more seriously* (T7)*; more importance to its disposal* (A3)*; creating a flow chart and teams to orient in case of accidents* (T11).

According to answers, the most recurrent suggestion was the need for more information related to the management of piercing-cutting waste addressing risk factors, prevention mechanisms and conducts to be adopted in case of accidents with the material, emphasizing the need for continuing education.

One of the participants suggested putting disposal boxes near beds in nursing wards. This practice has already been implemented at the Hospital Alemão Osvaldo Cruz in São Paulo, which has demonstrated a reduced number of accidents in the transportation of piercing-cutting material[13]. The same participant acknowledges however that, in the case of a pediatric hospital, this measure has to be reconsidered: *a box in each nursing ward would be ideal, but we work with children, so where would we put it? We cannot put it high, there was a case of an employee who was sued because she put a box high and a short employee got pierced* (T3).

Despite constant updating or training courses on handling and disposal of piercing-cutting material for professionals at the studied institution, effective changes in attitudes have not appeared according to A2: *there's always a course, who administers it always insists on the same thing. I guess it's only a matter of people who work in the area to get more attentive, 'cause there's the box, gloves, so how come they aren't used?*

Nurses usually administer updating courses offered in hospitals, which suggests there are essential weaknesses in teaching and learning processes of these professionals in study. Thus, there is a lack of more complex rationales involving self-reflection and construction of critical knowledge. "Historically, technical staff is trained to do without thinking, as they are alienated in compiling techniques and in applying them uncritically as soon as they receive an order"[17].

We also believe there are other factors compromising a change of attitude in these professionals. Among them, we can name the lack of continuing education, focused on nursing auxiliaries' and technicians' real needs, including planning, previous knowledge, adequate language, evaluation, supervision and follow-up in the work environment.

Coupled to these factors, culture and history of the nursing profession also reflect the problem, "it is the role of graduate nurses, whose training is focused on teaching and administration of nursing care, to manage care delivery, distributing and delegating specific tasks to the remaining nursing workers"[18].

Current teaching proposals for technical health courses are based on Brazilian Curricular Guidelines with new perspectives for these workers' education, which require: "cognitive, abstract, symbolic analysis, communication and inter-relation abilities with clients and co-workers; initiative and creativity; ability for cooperative teamwork and mutual training in the work environment, competence to evaluate the result of their work and implement measures to improve the quality of their work, mastering planning and work organization techniques"[14].

Current perspectives appoint a great challenge for nurses responsible for teaching these professionals because there are dichotomies between the education of nurses and technicians. The latter, being "manual workers", perform functions in which there is no control of the process or end product and remain alienated [...] nurses are also salaried employees, their education is intellectual and they manage care delivery"[18].

The teaching proposal based on the Curricular Parameters and Guidelines involves the need to promote changes in the teaching-learning process. It attempts to sensitize individuals to perform safe practice and to privilege standard precautions for their protection, even in situations of stress and work overload, emphasizing the importance of self-esteem and self-care"[18].

This way, nurses, in the role of health educators, should value the Ministry of Health recommendations so as to contextualize teaching-learning conditions of nursing auxiliaries and technicians through continuing education, enabling education strategies that permit trainees to make the link between the empirical and scientific practice without getting lost in intuitive experiences, especially in conditions of risk, like in the case of piercing-cutting management.

CONCLUSIONS

This study appoints the need for adjustments in nursing teams' work with a view to constructing critical and reflexive knowledge on daily practice. For that, nurses, in the role of educators and managers of nursing care, should conduct the continuing education process, taking into account the knowledge of nursing auxiliaries and technicians, aiming at a transformed practice.

Therefore, in view of the countless potential occupational risks posed by inadequate management of piercing-cutting material, personal and institutional investments are needed, valuing workers' experience and aiming to strengthen their performance, so as to promote effective daily practices and adherence to biosafety measures.

In this context, the identification of problem situations that can be addressed through training is essential, so as to face the challenges and alternatives necessary to break the ties of the technicist model. The development of research addressing the reason why strategies developed so far do not promote significant changes in health professionals' practice, which is the focus of this study, is crucial. In this perspective, there are prospects in current studies addressing adult education.

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