

ORIGINAL ARTICLE

KNOWLEDGE AND ATTITUDES OF NURSING PROFESSIONALS AT A HOSPITAL IN THE BRAZILIAN STATE OF SÃO PAULO REGARDING STANDARD PRECAUTIONS

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ABSTRACT

Objective: to analyze the knowledge and attitudes of nursing professionals regarding adherence to standard precautions.

Methods: descriptive study. The sample was made up of 165 nursing professionals who worked at a hospital in the Brazilian state of São Paulo. Data were collected by applying the Portuguese version of the Questionnaires for Knowledge and Compliance with Standard Precaution and analyzed by using descriptive statistics with frequency calculation.

Results: most of the professionals (98.2%) knew standard precautions, but 19.4% answered all the questions correctly. Adequate attitudes were identified concerning disposal of sharps (99.4%), use of gloves (91%), and hand hygiene (89.8%). Risk behavior was detected by the nonuse of masks (64.6%) and goggles (54.9%).

Conclusion: most of the analyzed professionals knew standard precautions, but their adherence attitude was partial. The present study contributes to planning safety actions at work and designing new studies on risk behaviors in nursing professionals.

DESCRIPTORS: Occupational Accidents; Nursing; Occupational Health; Occupational Exposure; Universal Precautions.

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CONHECIMENTO E ATITUDES DE PROFISSIONAIS DE ENFERMAGEM DE UM HOSPITAL PAULISTA FRENTE ÀS PRECAUÇÕES PADRÃO

RESUMO

Objetivo: analisar conhecimentos e atitudes de profissionais de enfermagem sobre adesão às Precauções Padrão.

Método: estudo descritivo. Amostra composta por 165 profissionais da enfermagem de um hospital paulista. Dados coletados pelos Questionnaires for knowledge and Compliance with Standard Precaution - versão em português e analisados por estatística descritiva com cálculo de frequência.

Resultados: a maioria dos profissionais (98,2%) conhece as Precauções Padrão, porém 19,4% responderam corretamente todas as questões formuladas. Atitudes adequadas foram identificadas em relação ao descarte de materiais perfurocortantes (99,4%), uso de luvas (91%) e higienização das mãos (89,8%). Comportamento de risco foi identificado pelo não uso de máscaras (64,6%) e óculos de proteção (54,9%).

Conclusão: a maioria dos profissionais conhece as Precauções Padrão, porém a atitude de adesão é parcial. Esse estudo contribui para o planejamento de ações de segurança no trabalho e a elaboração de novas pesquisas sobre comportamentos de risco de profissionais de enfermagem.

DESCRITORES: Acidentes de Trabalho; Enfermagem; Saúde do Trabalhador; Exposição Ocupacional; Precauções Universais.

CONOCIMIENTO Y ACTITUDES DE PROFESIONALES ENFERMEROS DE HOSPITAL PAULISTA RESPECTO DE LAS PRECAUCIONES ESTANDAR

RESUMEN

Objetivo: Analizar conocimientos y actitudes de profesionales enfermeros sobre adhesión a las precauciones estándar.

Método: Estudio descriptivo. Muestra integrada por 165 profesionales enfermeros de un hospital paulista. Datos recolectados mediante Questionnaires for knowledge and Compliance with Standard Precaution - versión en portugués, analizados por estadística descriptiva con cálculo de frecuencia.

Resultados: La mayoría de los profesionales (98,2%) conoce las precauciones estándar, aunque solo el 19,4% respondió correctamente todas las preguntas. Fueron identificadas actitudes adecuadas respecto a descarte de materiales punzocortantes (99,4%), uso de guantes (91%) e higiene de manos (89,8%). Se identificó comportamiento riesgoso por no utilización de barbijos (64,6%) y protectores oculares (54,9%).

Conclusión: La mayoría de los profesionales conoce las precauciones estándar, aunque muestran una adhesión parcial. El estudio contribuye a planificar acciones de seguridad laboral y a elaborar nuevas investigaciones sobre comportamientos de riesgo de profesionales enfermeros.

DESCRIPTORES: Accidentes de Trabajo; Enfermería; Salud Laboral; Exposición Profesional; Precauciones Universales.

INTRODUCTION

The hospital work environment poses great occupational risks to professionals inserted in it and may result in accidents and the development of diseases. These risks are related to the organization and dynamics of the work environment, the quantity and quality of the materials available to be used, the individual characteristics of the workers, and the intense work rhythm^(1,2).

The most common risk of injury professionals are exposed to in a hospital setting is that involving biological agents, because they are related to disease transmission and insalubrity, which result from direct contact of nursing professionals with patients. In this sphere, the most concerning diseases are those caused by the human immunodeficiency virus and hepatitis C and B viruses⁽¹⁻³⁾.

Nursing is part of a professional category that is exposed to the occurrence of occupational accidents with biological material, given that it involves executing activities that demand constant and direct contact with patients and handling materials potentially contaminated by infectious agents and sharps such as needles, glassware, and blades.

Considering the real possibilities of transmission of infectious diseases resulting from occupational accidents, preventive measures were recommended worldwide to decrease occupational risk. They were named Centers for Disease Control and Prevention Standard Precautions⁽³⁾ and aim to minimize risks and promote the adequate use of personal protective equipment (PPE). This is the main protection barrier for professionals to prevent accidents, but workers usually show resistance to adhere to it, and incorrect use of PPE increases the probability of exposure to biological material^(2,4).

Although adherence to standard precautions (SP) to prevent pre-exposure to biological material is effective, it is still low among health professionals^(5,6). The literature shows that low adherence can be related to discomfort, inconvenience, carelessness, forgetfulness, lack of habit, equipment inadequacy, and lack of material⁽⁷⁾.

Consequently, understanding and examining the knowledge of health professionals regarding SP in face of the risks is fundamental to design strategies and studies that can improve the work conditions of these professionals. The objective of the present study was to analyze the knowledge and attitudes of nursing professionals regarding adherence to SP.

METHOD

This is a descriptive study, with a quantitative approach. Data were collected at a teaching hospital in Ribeirão Preto, state of São Paulo, Brazil, from January to December 2016. The sample was made up of 165 nursing professionals, of whom 39 were nurses, 60 were nursing technicians, and 66 were nursing aides. The inclusion criterion was being a nursing professional that went through occupational accidents with exposure to biological material registered at the Safety and Occupational Medicine Service (SESMT, as per the abbreviation in Portuguese) at the hospital where the study was carried out and at the Occupational Accidents Prevention Network (REPAT, as per the acronym in Portuguese) at the University of São Paulo⁽⁸⁾.

Data were collected by applying the Questionnaires for Knowledge and Compliance with Standard Precaution, designed and validated by Luo⁽⁹⁾ and adapted to the Brazilian reality by Valim⁽¹⁰⁾. The instrument consists of a questionnaire for sociodemographic and occupational characterization, a questionnaire addressing adherence to SP, and a questionnaire related to the knowledge regarding SP, and all of them are self-applicable. They were printed on paper sheets and handed over to the nursing professionals. A search

was carried out at the SESMT to find out what nursing professionals had experienced occupational accidents with biological material and the hospital unit they worked at. These professionals were contacted by one of the researchers and given the data collection instruments so these were filled out. The collection of the tools with the professionals' answers was scheduled.

The questionnaire for sociodemographic and occupational characterization encompasses the following variables: gender; work sector; birth date; marital status; level of education; place of professional activity; time of professional experience; vaccination against hepatitis B and knowledge regarding the presence of the anti-hepatitis B surface antibody; participation and desire to participate in training about SP; occurrence of occupational accidents with biological material; reporting of occupational accidents with biological material; and execution of replacement of sharps disposal containers. This part of the instrument was submitted to content validation. The questionnaire addressing knowledge regarding SP is made up of 20 questions about SP basic concept and contents and practical requirements concerning SP, including the need for hand hygiene, use of PPE, safe practices when handling sharps, and infection prevention.

The possible answers are "yes", "no", or "unknown". Each correct answer adds 1 point to the score, and incorrect or "unknown" answers correspond to 0 points. The highest possible score is 20 points and the higher the score, the greater the knowledge of the participant regarding SP. The instrument obtained a content validity index of 0.98, a test-retest reliability coefficient of 0.86, and an internal consistency index of 0.92⁽¹⁰⁾.

The questionnaire related to adherence to SP has 20 questions about adherence of health professionals to SP and was designed as a Likert scale, with a score ranging between 0 and 4 points. Each "always" answer corresponds to 4 points; the "frequently" option adds 3 points; "sometimes" corresponds to 2 points; "rarely" adds 1 point; and "never" corresponds to 0 points, except for question 20 (inverted items). The possible score varies from 0 to 80 points and the higher the score, the more the participant follows SP. The validation process of this tool resulted in a content validity index of 0.98, a test-retest reliability coefficient of 0.87, and an internal consistency of 0.93, expressed by Cronbach's alpha⁽¹⁰⁾. The results are shown as graphics and tables.

The present study is part of a research project entitled "*Rede de Prevenção Acidentes de Trabalho – REPAT/USP: adesão às medidas preventivas primárias a exposição ocupacional a material biológico*", which was approved by a research ethics committee as per report no. 053/2015 and CAAE registry no. 43032815.0.0000.5396. Secrecy and anonymity of the participants were ensured over the execution of the research project and data dissemination.

RESULTS

In the sample of 165 professionals analyzed, 39 (23.6%) were nurses, 60 (36.4%) were nursing technicians, and 66 (40%) were nursing aides. The average age was 40.4 years, ranging from 24.9 to 65.9 years, and 125 participants were women (75.8%).

Figure 1 shows the frequency of occupational accident reporting according to the distribution of the quantity of accidents. It was observed that 61.8% of the participants did not report the occupational accidents they went through and that 11% declared that they had experienced an occupational accident. Additionally, 0.6% reported that they went through eight occupational accidents with biological material.

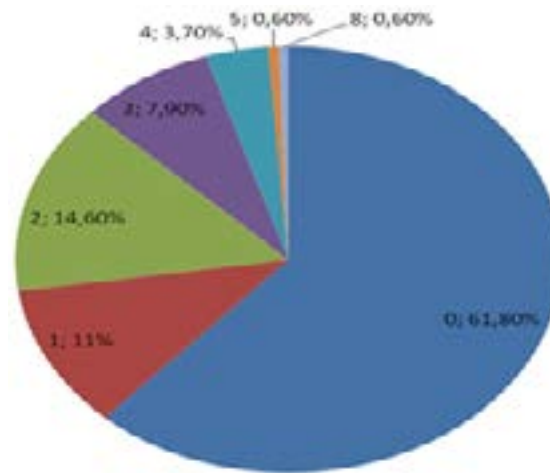


Figure 1 – Distribution of occupational accidents with exposure to biological material in nursing professionals according to the percentage numeric frequency. Ribeirão Preto, São Paulo, Brazil, 2016

Table 1 shows data about the knowledge of the professionals regarding SP basic concepts. When asked whether they knew what SP were, 161 (98.2%) declared that they did, and three (1.8%) informed that they did not. Regarding the prohibition against folding, bending, or performing active needle guarding, 141 (86%) professionals answered assertively to it, and 22 (13.4%) reported that they did not know the restriction on performing these actions. One hundred and thirty-two participants (80.5%) informed that it is necessary to adopt only SP when providing care to patients with syphilis and hepatitis, and 25 professionals (15.2%) declared that these precautions are not enough.

Table 1 – Knowledge of nursing professionals regarding standard precautions. Ribeirão Preto, São Paulo, Brazil, 2016

STANDARD PRECAUTION (SP) MEASURES				
Situation	Yes n/%	No n/%	Unknown n/%	Missing data n/%
- Knows what standard precautions are.	161 (98.2%)	0 0%	3 (1.8%)	1
- Knows that it is prohibited to fold, bend, or perform active needle guarding. When necessary, passive guarding should be carried out.	141 (86%)	22 (13.4%)	1 (0.6%)	1
- Knows that it is necessary to adopt only SP when providing care to patients with syphilis or hepatitis C.	132 (80.5%)	25 (15.2%)	7 (4.3%)	1
- Knows that it is necessary to adopt SP in addition to droplet precautions when providing care to patients with tuberculosis and chickenpox.	140 (85.4%)	24 (14.6%)	-	1

Figure 2 shows the use of the PPE recommended in SP. It was observed that 106 professionals (64.6%) reported that they always used protection masks, while three (1.8%)

and one (0.6%) declared that they rarely or never used it, respectively. Regarding goggles, 90 participants (54.9%) reported that they always used it, 40 (24.4%) declared that they used it frequently, 27 (16.5%) mentioned that they used it sometimes, and seven (4.3%) reported that they rarely used it. For the PPE coat, the option “always” was chosen by 97 professionals (59.1%), the answer “frequently” was marked by 43 (26.2%), the option “sometimes” was selected by 19 (11.6%), and the answer “never” was chosen by five (3%).

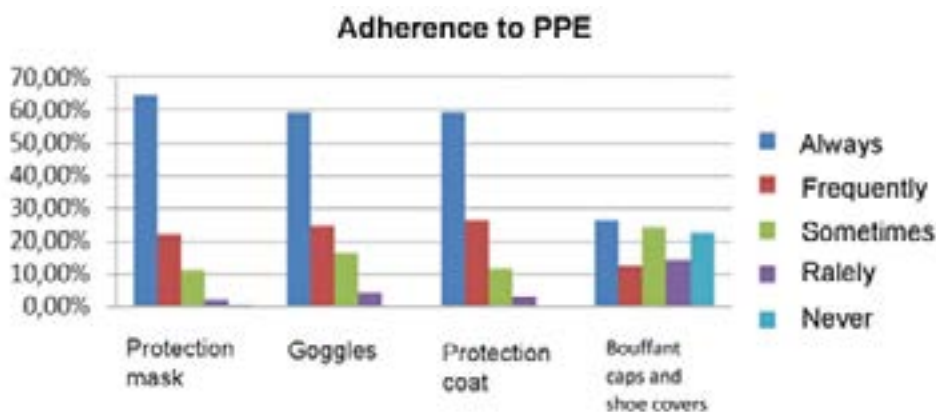


Figure 2 – Adherence to standard precautions as a function of personal protective equipment item during procedures and after occupational accidents. Ribeirão Preto, São Paulo, Brazil, 2016

Figures 3 and 4 show the professionals’ intention to adhere to SP as a function of the variables hand hygiene and use of gloves. Regarding the former, 158 (96.3%) of the participants reported that they carried out the procedure after contacting potentially contaminated material. Only 146 (89%) always performed hand hygiene after taking off the gloves, and 138 (84.1%) declared that they executed the procedure between providing care to different consecutive patients.

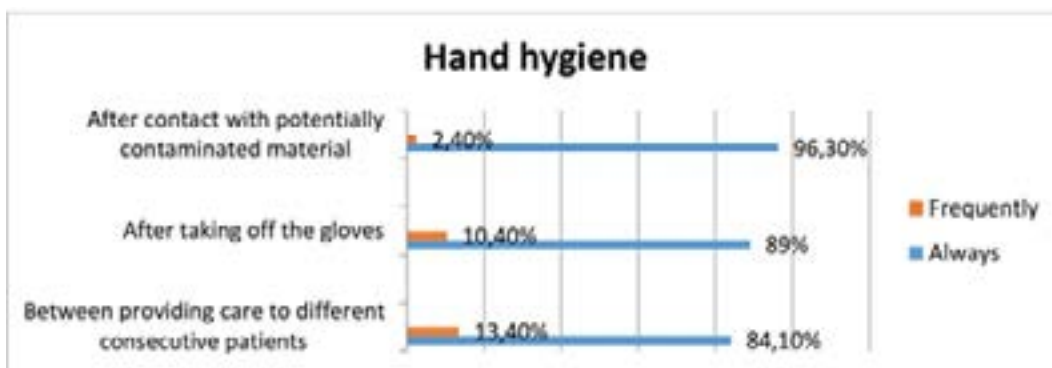


Figure 3 – Frequency distribution of hand hygiene in nursing professionals. Ribeirão Preto, São Paulo, Brazil, 2016

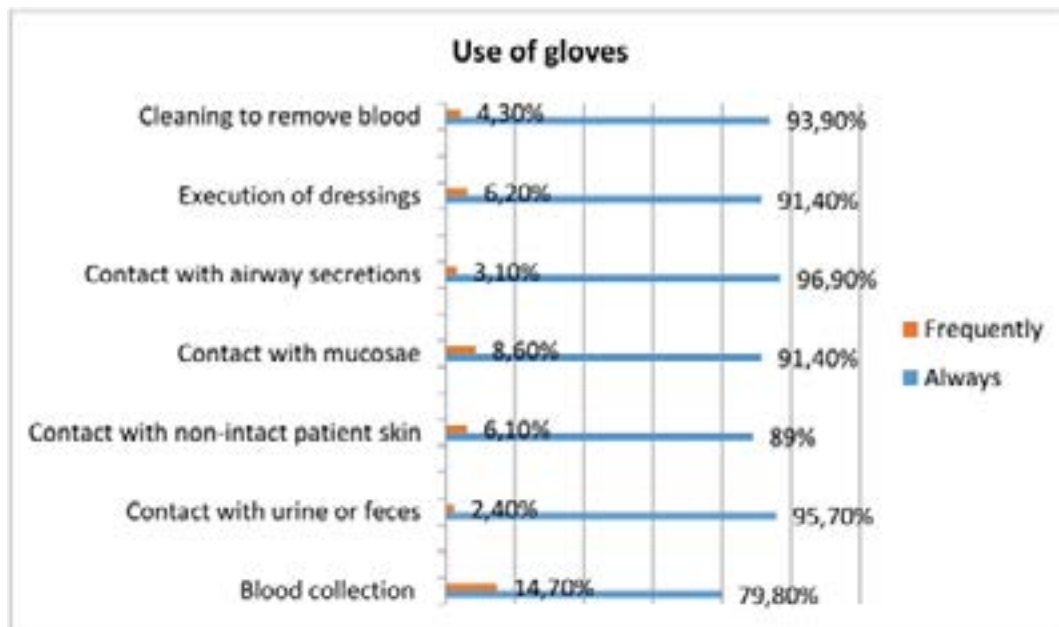


Figure 4 – Frequency distribution of use of gloves in nursing professionals. Ribeirão Preto, São Paulo, Brazil, 2016

The constant use of gloves to clean or remove blood was reported by 153 workers (93.3%), and seven (4.3%) declared that they frequently adhered to this PPE item in these situations. Execution of dresses always involved gloves for 148 professionals (91.4%) and frequently included this PPE article for 10 participants (6.2%). One hundred and forty-five professionals (89%) answered that they always used gloves to have contact with non-intact patient skin, and 10 (6.1%) reported that they did that frequently. Regarding the item blood collection, 130 participants (79.8%) declared that they always adhered to using gloves, and 24 (14.7%) mentioned that they used this PPE item frequently.

DISCUSSION

The nursing professionals included in the analyzed sample were mostly women and had an average age of 40 years. Their professional time varied from two months to 41 years, which shows that working in the area for a long time does not prevent the occurrence of occupational accidents with exposure to biological material. However, a study⁽¹¹⁾ carried out with nursing professionals at a teaching hospital in the interior of the Brazilian state of São Paulo showed that the longer the experience time of a professional, the higher the tendency to adhere to SP measures, especially hand hygiene. In contrast, another study⁽⁵⁾, developed with 590 nursing professionals who worked at the intensive care unit of a teaching hospital in the state of São Paulo, identified that greater professional experience can lead to nonadherence to SP because workers feel safe when providing care without using PPE. It is noteworthy that ten participants (6.1%) who went through occupational accidents had a master's degree and 19 (11.5%) had a specialization.

The results indicated that, although the professionals knew the concepts related to SP, many participants did not know the necessary information thoroughly and needed immediate updating, even taking into account that most of the workers (89%) had participated in educational programs. Training and information updating was identified as an indicator of reduction of risk of exposure and a factor that increases adherence to SP in a study carried out with nursing professionals⁽¹¹⁾.

It was found that 161 participants (98.2%) answered that they knew what SP are, but some wrong and mistaken concepts were identified concerning hand hygiene during the delivery of care to different patients, the situations in which using goggles and bouffant caps is necessary, active needle guarding, and what the adequate recommendations to provide care to patients with venereal diseases or tuberculosis are. Other studies⁽¹²⁻¹⁴⁾ have also described similar results, which indicates that some nursing professionals did not have adequate knowledge regarding the correct use of PPE and that constant attention must be paid to continuing education in health services.

The reduced use of some PPE items, especially protection masks and goggles, may be related to the lack of information of the professionals about the correct way to use them, but also to behavioral attitudes that deserve the attention of service managers so risk behaviors can be discussed and prohibited.

An integrative review⁽²⁾ and a study⁽¹⁵⁾ carried out in the medical clinic at a teaching hospital in the Triângulo Mineiro region, in the Brazilian state of Minas Gerais, identified that, although adherence to SP is the main strategy to prevent especially cross infection and promote safety to patients, their relatives, and health professionals, adherence to SP by the latter is still lower than expected and desirable also in other hospitals.

All professionals must perform the hand hygiene procedure before and after providing care to each patient, even when they use protection gloves, and when handling biological material, for their own protection and patients⁽³⁾, given that inadequate hand hygiene in health professionals between the delivery of care to different consecutive patients has been proven to be a contamination source. However, the analyzed professionals showed low adherence to this procedure, which is included in the SP: 138 participants (84.1%) declared that they performed hand hygiene between the delivery of care to different consecutive patients, 146 (89%) answered that they executed the procedure after taking off the gloves, and 158 (96.3%) after having contact with biological material. This problem was also detected in studies developed in other hospitals⁽¹¹⁻¹⁶⁾.

Gloves were the PPE item most used by the workers of the present study during blood collection procedures, in situations in which there is the possibility of contact with blood, urine, feces, and secretions, execution of dressings, and cleaning. Other studies have identified gloves as the most adopted PPE item by nursing professionals during care delivery^(11-13,16).

The professionals showed low adherence to the use of masks (106 participants or 64.6%), goggles (90 participants or 54.9%), and protection coats (97 participants or 59.1%). A similar result has been found in other studies^(11,16). The nursing professionals who did not use goggles mentioned that the reason for them not doing so is that the object steams up, which makes it difficult to see. They also declared that they had questions about when they should use it⁽¹¹⁾. The same reason was cited to justify the low adherence to using protection masks, in addition to the discomfort to breathe.

Goggles must be used to protect the eyes and the face during procedures that involve the possibility of liquid splashing or to prevent the impact of objects⁽¹⁷⁾. The correct use of masks protects upper airways and the oral mucosa and varies according to the material to be handled. One example is biological pathogenic agents that are associated with a high probability of aerosol formation⁽¹⁷⁾.

Many participants declared that they carried out active needle guarding or passive guarding using only one hand, even when this conduct is forbidden by the Brazilian regulatory norm no. 32⁽¹⁸⁾. This practice is not recommended in other countries, but its execution is still observed^(11,12) in nursing professionals who keep this risk behavior, and it significantly increases the risk for workers to go through an accident. This occurs because the needle can break the protective cover and puncture the fingers of the professional who is handling it. The literature shows that the chances professionals have to experience an accident are up to 25 times higher when they carry out active guarding⁽¹⁹⁾. In many countries, it is legally required that health institutions make needles with safety devices

available to the professionals, and a study showed that these devices reduce the occurrence of accidents with needles and intravenous apparatus in which punctures happen⁽²⁰⁾.

Some of the reasons that explain low adherence to SP that have been listed in previous studies are inadequate working conditions, nonavailability of proper safety materials and equipment by hiring institutions, lack of continuing educational programs, work overload, and lack of knowledge of the employees regarding PPE handling, for instance the syringes with retractable needles^(11,12,20).

Last, workers' awareness of the importance to adhere to SP, ensuring that care is safer to both professionals and patients, can also be a determining factor for adherence to SP⁽²⁰⁾.

It is necessary to emphasize that behaviors that pose risk to safety in nursing work must be suppressed and can be modified by adopting educational practices and implementing a training process for nursing professionals.

The limitations of the present study occurred in the data collection process and are related to four main points: locating the workers who had gone through accidents; raising the professionals' interest in participating in the study; making them hand over the questionnaire in the agreed schedule; and increasing the number of questionnaires that are fully answered.

Locating the participants after searching for the names of professionals who had experienced accidents at the SESMT was hindered by the fact that many of them did not work at the place indicated by the electronic system when the study was in progress. Consequently, an active search had to be carried out in all the 12 floors of the hospital, each one of which having two wards. Another aspect that impaired the execution of the present study was the willingness of the professionals to be part of the sample. The reasons they mentioned to not participating in the study were lack of time, work overload, and the obligation of participating in several other studies, given that they worked at a teaching hospital. Lack of motivation of the participants and lack of time (for those who opted to answer the questionnaire at the workplace) hindered the completion of the instrument, which resulted in questionnaires having been incorrectly filled out and excluded from the study.

CONCLUSION

Although SP are internationally recommended, adherence to them was partial by the analyzed nursing professionals, because of individual and organizational factors. The authors stress the need to expand the offering of information about the necessary measures to prevent cross infections and when and how some PPE items such as goggles and protection masks must be used.

It is considered that increasing the proposition of continuing education programs to nursing professionals and applying strategies that effectively encourage changes in risk behaviors toward safe work behaviors are necessary actions. The authors recommend including educational practices and the participation of people considered as leaders by groups of workers in preventive actions, so these designated employees can be seen as good examples and help increase adherence to SP. Similarly, it is important to promote discussions with nursing teams about adherence to SP and the attitude when the members are faced with risks to guarantee safe behaviors, which minimize the occurrence of occupational accidents and the work-related development of diseases.

The present study adds scientific knowledge to the area of nursing and occupational health, because it shows data related to nursing professionals' information gaps, which must be addressed since their training period and in educational practices implemented for

those who already work. The collected data indicated the need for a more comprehensive look at the factors involved in the nursing working situation, seeking the prevention of accidents and improvement of working conditions.

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Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - MHPM
