

# Nursing Professionals and Occupational Accidents

REVIEW

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## Abstract

**Objective:** Identify main work accidents that occurs with nursing workers.

**Method:** This is an integrative literature review that enabled to include scientific articles indexed in the databases of Virtual Library in Health (BVS). Searches were made from october to november 2016, using the descriptors: "work accidents", "nursing professionals", separated between themselves by the boolean operator AND. The following criteria were adopted: fully available articles, in portuguese language, published in the last five years. Articles that presented some duplicity and didn't meet the proposed study objectives were excluded. After searches, ten scientific productions about the subject were selected.

**Results:** Results indicate the occurrence of accidents between nursing professionals; the main factors were related with sharp object handling, non-utilization of IPEs and excessive workload.

**Conclusion:** It is concluded that strategies are required to minimize these occurrences, as the adoption of standard precautionary measures, the adequacy of staff numbers and better work conditions to this professional category. Besides that, the need of new researches about this subject are emphasized.

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## Keywords

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## Introduction

The Work Accident (AT) is the one that occurs by the exercise of the work, provoking corporal injury or functional disturbance, permanent or temporary damage that causes death, loss or reduction of work capacity [1].

The Organic Health Law, Law No. 8,080, of September 19, 1990, regulates that the Unified Health System (SUS), through epidemiological and sanitary surveillance, should develop actions aimed at the promotion and protection of workers' health, with a view to recovery and rehabilitation of workers' health [2].

The work accident is considered a problem that deserves attention, especially when it comes to nursing professionals, due to the risks present in their work environment. The day-to-day work of nursing is one of the worrying factors, often related to the double journey, leading to poor quality of care, accidents, psychological trauma, the lack of motivation of the team, besides the physical [3].

It is noteworthy that in this professional category, one of the main accidents that affects them is associated with the handling of piercing material (needles), material that is potentially contaminated, being linked to several risk factors such as exposure to biological material, and it can cause these infections acquired through professional work, such as exposure to hepatitis B virus (HBV), hepatitis C virus (HCV) and acquired immunodeficiency syndrome (AIDS - HIV), which can lead to severe damage to health workers [4].

With regard to legislation on health and safety of health service workers, Norma Regulamentadora 32 (NR 32), establishes that all health institutions should implement actions to promote, protect and recover workers' health. This Standard also establishes that the employee is informed of the risks and that they are presented in a clear manner, also offering immunization programs against communicable diseases and training for these health professionals. The standard provides that no wor-

ker should start their activities without the use of Personal Protective Equipment (PPE). In addition to mentioning, some conduits to avoid AT with biological material, for example, the prohibition of the reencapsulation of needles and the manual disconnection of syringes [5].

According to research data, the incidence of accidents with nursing workers occurs more frequently among health professionals. The hands correspond to the limb most affected by these accidents resulting in 95.7% of the events; 45.7% of the professionals were not using procedure gloves at the moment, and could lead professionals to acquire the hepatitis B virus (HBV), hepatitis C virus (HCV) and AIDS. Regarding the use of needles, the contamination ranges from 6.0 to 30.0%. Disease involvement, such as hepatitis B, is 0.5 to 2.0%; Hepatitis C and AIDS, the percentage varies from 0.3 to 0.4%, considering that the higher risk of infection is associated with the hepatitis B virus [6].

It is observed, therefore, that the non adherence to the use of PPE and the standard precautionary measures reflects the high index of work accidents among nursing professionals. For this reason, it is necessary to train and sensitize professionals to use adequate techniques and protective equipment, always keeping the professional motivated and experienced [7].

Given this context, it can be seen that nursing professionals are very exposed to the risks present in their work environment, in addition, due to the posture of these professionals, who, due to the overload of work, end up being exposed to high occupational risks, not using standard precautionary measures, aspects that aroused in the researcher the interest in the subject, who noticed in the stages the disregard of the professionals, who are daily exposed to some type of accident and, nevertheless, the use of PPE.

Considering the above, it is questioned: What are the main work accidents that affect nurses, according to the literature? Thus the objective of the

present study was: To identify in the literature the occurrence and factors that contribute to work accidents among nursing professionals.

## Method

It is an integrative review of literature, which aims to fill a knowledge gap to respond to the problems proposed through the use of bibliographic research. In the development of this review, the following steps were taken: identification of the theme and research question, literature search, categorization of studies, analysis of the studies included in the integrative review, interpretation of the results, synthesis of the evidenced knowledge [8].

The thematic of the study deals with the occurrence of work accidents among nursing professionals and the same had as objective, identify, through scientific productions, the main types of work accidents that affect this professional category.

To reach the proposed objective, a survey of the publications in the Virtual Health Library (VHL) was carried out, initially used the descriptors in health science (Decs): "Accidents of Work" AND "Professionals of Nursing". In the search, articles that met the objectives of this review were found in the databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Online Retrieval System (MEDLINE) and Database Of Nursing (BDENF). The following inclusion and

exclusion criteria were adopted: articles available in full in the Portuguese language and that have been published in the last 5 years. We excluded articles that presented in duplicate and did not meet the objectives of this study.

The information of the articles that compose the final sample was extracted by means of a research instrument (**Figure 1**), with the purpose of gathering and systematizing the information, in order to pass trust in the use of the results, strengthening the conclusions that will generate knowledge.

We included in the final sample the scientific productions that evidenced factors that contributed to the work accident among nursing professionals, through detailed readings. The findings were also discussed through relevant literature. For a better synthesis of the information that was obtained through the findings, the results will be shown through tables and tables for better visualization. The data collection period was from March to November 2016.

## Results

Through the searches in the databases, 388 articles were initially found, of which only 38 articles were selected for reading, since only this quantitative met the inclusion criteria. After thorough reading of the articles found, a final sample of 10 articles was obtained, where the majority focuses on work-related accidents related to exposure to biological materials. Regarding the databases, it was observed that 70% (n = 7) of the articles were available in LILACS, followed by the BDENF database with 30% (n = 3), as can be observed in **Figure 2**.

**Figure 3** shows that the year with the highest number of publications was 2014, with 30%, followed by the years 2015, 2011 and 2010 with the same percentage of 20%. It is highlighted that in 2012 there was only one publication on the subject studied and that in the year 2013 there were no publications.

**Figure 1.**

**DATA COLLECTION INSTRUMENT**

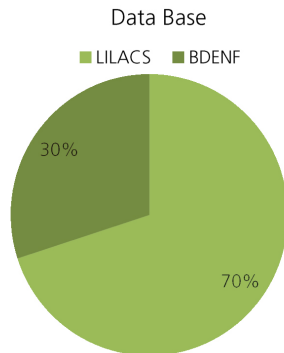
Sample Characterization  
Year of publication  
Name of the journal  
Article title  
Data base

**STUDY APPROACH**

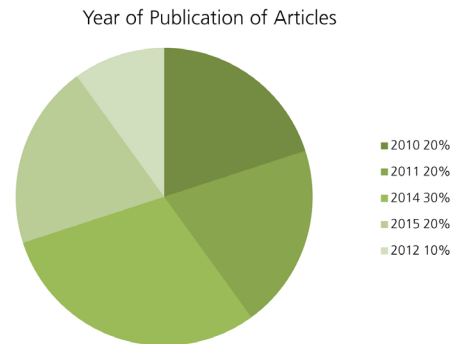
- Quantitative Approach
- Experimental Design  Qualitative Approach
- Literature Review  Experience Report
- Others \_\_\_\_\_

Objectives of the Study  
Limitations

**Figure 2.** Distribution of articles according to the database.



**Figure 3.** Distribution of articles according to year of publication.



**Table 1.** Distribution of articles according to the publication periodical.

Newspaper	Percentage of Articles
	%
Revista Brasileira de Saúde Ocupacional	20
Revista de Enfermagem UERJ	20
Revista Brasileira de Enfermagem	10
ACTA Paul Enfermagem	10
Revista Enfermagem a nordeste de rede	10
Cogitare Enfermagem	10
Revista Baiana	10
Revista Espaço para Saúde	10

As for the periodicals of the publications, the journals were kept constant with a greater percentage of 20%: Revista Brasileira de Saúde Ocupacional and Revista de Enfermagem UERJ, with the same percentage, where the other journals followed with a percentage of 10%. **(Table 1)**

For a better understanding of the scientific productions that composed the final sample of this integrative review, the table 1 below was elaborated with the following information: Authors/year, title, periodical, database, type of study, study objective. **(Table 2)**

**Table 2.** Distribution of works and articles that composed the sample according to authors/year, title, periodical, database, type of study, study objective.

Authors	Year	Title	Periodical	Data base	Type of study	Study Objective
Julio RS, Filard MBS, Marziale MHP	2014 (1)	Work accidents with biological material occurred in municipalities of Minas Gerais	Revista Brasileira de Enfermagem REDEn	LILACS	Descriptive, cross-sectional study of quantitative data approach	To identify the profile of accidents with exposure to biological material in the southern region of the state of Minas Gerais
Araújo TME, Silva NC.	2014 (2)	Accidents with sharp instruments and hepatitis B among nursing staff of emergency units in Teresina, Piauí state, Brazil	Revista Brasileira de Saúde Ocupacional	LILACS	This is an analytical cross-sectional study	To analyze the occurrence of sharps injuries and the preventive measures associated with hepatitis
Bessa MEP, Almeida MI, Araújo MFM, Silva MJ,	2010 (3)	Occupational risks of nurses working in the family health strategy	Revista enfermagem UERJ	BDEFN	bibliographic research	Discuss the occupational hazards to which the nurses working at the ESF are exposed
Valim MD, Marziale MHP, Hayashida M, Martínez MR,	2014 (4)	Occurrence of occupational accidents involving potentially contaminated biological material among nurses	Acta Paul Enfermagem	LILACS	Cross-sectional study	To investigate the occurrence and characteristics of accidents with potentially contaminated biological material in nurses

Authors	Year	Title	Periodical	Data base	Type of study	Study Objective
Feijão AR, Martins LHFA, Marques MB,	2011 (5)	Conduct post-accident injuries: perception and knowledge of primary care nurses in fortaleza	Revista Rene	LILACS	This is a descriptive and field study with a quantitative approach	To investigate the knowledge of basic care nurses about the behaviors to be taken in the event of an accident with sharp material
Machado MRM, Machado FA,	2011 (6)	Work-related accidents with biological material among nursing staff from General Hospital in Palmas, state of Tocantins, Brazil	Revista Brasileira de Saúde ocupacional	LILACS	Descriptive cross-sectional study	To identify the work accidents with biological material occurred with the nursing workers of the General Hospital of Palmas (HGP)
Garbaccio JL, Regis WCB, Silva RMC, Estevão WG,	2015 (7)	Occupational Accidents With The Nursing Team Involved In Hospital Care	Cogitare Enfermagem	LILACS	Cross-Sectional Research	Describe occupational accidents with the nursing team
Robazzi MLCC, Mauro MYC, Secco IAO, Dalri RCMB, Freitas FCT, Terra FS	2012 (8)	Health changes from overwork among health sector workers	Revista enfermagem UERJ	BDENF	Descriptive research using bibliographic research	Identify health workers with health changes that may be related to work
Campos JF, David HMSL,	2010 (9)	The cost of nursing at work: assessment of nursing in intensive care in the perspective of work psychodynamics	Revista Baiana de Enfermagem	BDENF	An exploratory, transversal, descriptive study	Measure and analyze the risks of illness in the work of the Nurse in Intensive Care Unit (ICU)
Santos EI, Gomes AMT, Marques SC,	2015 (10)	Occupational accidents and protective practices in social representations of nurses concerning their vulnerability	Revista Baiana de Enfermagem	LILACS	An exploratory, transversal, descriptive study	To describe biological occupational accidents and protective practices adopted by nurses

## Discussion

The category most affected by occupational accidents with exposure to biological material are nursing technicians and auxiliaries (46.7%), followed by nurses (8.0%). It is also noted that these accidents occur due to improper disposal of sharps. When related to the route of administration, 8.0% occurred during intravenous administration and 7.2% during intramuscular administration; (82.3%), followed by non-intact skin (38.4%) and intact skin (5.0%). As for the manipulated instrument, most of the accidents were by needle (67.6%), followed by other agents (11.3%), and needle without lumen (8.5%). [9].

There is still a considerable percentage of health professionals who are not immunized for Hepatitis B, since 14.0% do not have the complete schedule

with the three doses of the vaccine. In cases where the source was known, most of them presented non-reactive serology for the three infectious diseases considered in the accident [9].

Most of the work accidents that affect the nursing team are related to the handling of sharps, highlighting also that most accidents occur with the female sex (85.41%). This prevalence is due to the fact that the nursing team is mostly composed of women. It was also pointed out that professionals with lower knowledge and professional qualifications are subject to some kind of accident, and professionals with longer service periods end up more risky because they feel they have greater skills, neglecting precautionary measures for protection individual [3].

It can be noticed that 47.9% of the professionals who composed the sample of a given study have already suffered some type of occupational accident with sharp materials, being the needle (77.0%) the most outstanding instrument; Already related to the professional category was observed the one of technician of nursing with index of greater number of accidents (67.0% to 70.0%); with regard to the vaccination situation against Hepatitis B, it was highlighted that the nurses presented the highest percentage of the complete vaccination scheme, followed by technicians and nursing auxiliaries [10].

With respect to the use of personal protective equipment, all stated that they use procedure gloves as a protective measure. It was also observed the non-adoption of prophylactic measures after exposure to sharps injury and that these occurrences become more serious due to the underreporting of cases that grow every day in health institutions [10].

Work accidents occur more frequently due to overwork and workloads, which leads to emotional exhaustion. The authors highlight the importance in the development of actions that aim at the quality of life related to the work environment, and cite as an example measures such as rest between meals, adequate work environments, increase of remuneration and greater benefits for the nursing professionals [11].

For a good development of labor activities, it is necessary to equip individual and collective protection, as well as adequate working conditions, considered that the workers of the Family Health Program (FHP), how they operate at the outpatient level and would also be exposed to occupational risks in the development of their activities and not only those working in hospitals [12].

Regarding the profile of work accidents with the nursing team, we highlight the accidents with sharps and exposure to biological material, such as those that most affect this professional category, pointing out the necessity of the use of personal protective equipment and the importance of the com-

plete vaccination scheme, besides the qualification of the professionals. The authors also emphasized the importance of post-accident behaviors according to what the Ministry of Health advocates, and underreporting was another point of note because most workers did not report accidents, pointing out special attention to educational actions in this sense [13].

According to a study carried out in health facilities of two Brazilian municipal hospitals, it was seen that there is no significant difference in the occurrence of work accidents compared to other work institutions, since they show that the nursing category is predominantly female under the age of 40, it also adds that many of the nurses type some kind of specialization linked to the university hospital. Regarding the accidents with sharps, it is related to the occurrence of the number of invasive procedures, such as venipuncture and laboratory tests. The study further reveals that the risk of HCV virus contamination reaches 1.8% while the HIV virus ranges from 0.3 to 0.5%. The study also highlights the need for notification and follow-up of accident victims, as well as the provision of standard precautionary measures, enabling an environment that facilitates safety for the professional and the patient [4].

Nursing work is extremely repetitive, leading to the appearance of Work-Related Osteomuscular Disorders (DORS), subjected to high demands in the work environment, stress due to overload of work, lack of professionals, interfere in the quality of care and overloading the nursing professional with physical effort, repetitive movements, physical injuries, often generating physical incapacity. The DORS constitute a significant reality in the work environment, according to the study, musculoskeletal disorders, are more present and constitute a reality among nursing workers, causing illness and withdrawal from work [14].

It was observed that 38.8% of the interviewees had already suffered some kind of accident with

sharps, 61.2% would not have suffered any type of accident. The finger was highlighted as the region of the body most affected, due to the handling of needles, reencapsulation, among others. With regard to post-accident drills, 52.2% of the accident victims performed some conduct or followed the institution's conduct; A good part of the interviewees (88.8%) showed themselves to be knowledgeable about the conduct to be followed; 83.3% felt prepared to act in the face of an accident [15].

Biological risks are the ones that most affect nursing, highlighting the ergonomic risks to which nurses are exposed daily, emphasizing the importance of training and adopting standard precautionary measures, early identification of risks, making it possible to reduce the risks present in the nursing routine [16].

Women are the most affected by accidents with exposure to biological material, due to the fact that the majority of health professionals are female; already related to the frequency of accidents, between technicians and auxiliaries is much higher (49.8% to 54.3% respectively) than among nurses (21.1%), Because technicians are more present in the invasive procedures, with a higher use of perfusion materials, these professionals are the ones who most manipulate the medical-hospital materials, it is also emphasized that nurses, due to the type of activity, have been less victims of Accident for being more active in the administrative area [17].

With regard to exposure to the AIDS virus, it is noteworthy that many workers believe that they are free from scratches when they are injured by stereo material, not ceasing to worry about this type of accident, for reasons that end up occurring a technical error, implying in reflection about the lack of knowledge and awareness of the workers [17].

The exposure to biological loads comes from the manipulation of patients with communicable diseases, invasive procedures, surgical wounds, among others, involving piercing material, with the needle

being the main object responsible for these events. Regarding worker protection and safety measures, the aforementioned study points to the fragility of this preventive behavior, unhealthy and dangerous work activities, and the nursing worker is more susceptible to work-related accidents [16].

In a study carried out with the nursing team of two public hospitals in the city of Arcos, in the center-west of Minas Gerais, it was noted that 59.6% of the interviewees had already suffered some type of accident, the majority of professionals who reported some type of accidents are male (80.0%). With regard to statistical data the accident with women is seven times higher, with predominance of nursing technicians, followed by nurses and nursing assistants. With regard to occupational accidents, there were higher reports of younger professionals with less experience in the profession [18].

Health changes among nursing staff due to long working hours: increased number of accidents, musculoskeletal injuries, fatigue, psychological symptoms, among other injuries. Overworking facilitates the occurrence of absenteeism, accidents at work and even error with medications. The mentioned study highlights the existence of stressed workers, doubly crossed or with employment bond to survive, are situations that favor the illness of nursing professionals [19].

Nursing is a profession for the risk of occupational stress related to the organization and work process, lack of material resources and great responsibilities. Nurses from diverse areas have suffered from stress and burnout due to the exhaustive characteristics, as well as the wide range of functions assigned to nurses [20, 21].

As for the severity of the accidents, the greater part is the cognitive cost, following of the physical and affective. The characteristics of the accidents are related to the use of physical force, continuous strength, being in a curved position, using the hands repeatedly, recognizing that nursing work is manual, cognitive cost, such as the use of tricks, use

vision continuously or even are forced to deal with unexpected contingencies [22].

Nursing is exposed to occupational hazards, those involved in accidents believe that it is an occupational hazard inherent in work, and that nursing workers neglect to use PPE as a protective device, but also by addressing working conditions, occupational accidents, excessive workloads [20, 21].

Regarding the vulnerability of nursing professionals to accidents with biological materials, as well as the reasons why they occur, the professionals highlight the biological accidents, emphasizing the psychological impact on the act of accidents and the fear of the nurses [23].

The object considered the greatest cause of work accidents is the needle, due to some habits such as reencaption. Data obtained in the study emphasize the need for orientation programs, that is, the importance of sensitizing professionals on the correct use of PPE and preventive measures for worker health [24].

## Conclusion

When addressing the issue of work accidents among nursing professionals, it was possible to identify which major nursing accidents affect this category. The studies highlighted the accidents with exposure to biological material, handling of sharps, and musculoskeletal disorders. The investigations predominated the hospital environment, with nursing as the target population.

It was noticed, through scientific productions, the need for an approach on the relationship between working conditions and work accidents, understanding what impact the accident causes on the quality of life of the nurse, and the changes that occur in the worker's life after the accident. It was also observed the need to invest in studies that address the preventive measures and the knowledge of the behaviors that must be adopted after the occurrence of an accident.

However, what can be observed through the studies, is that occupational accidents is increasingly present among nursing professionals, that is, it is evident in the daily life of the nurse.

The present integrative review brings nursing contributions, showing that the accidents are not limited only to biological but also to psychological risk, evidencing that there is still much to be done for the safety and quality of life of the nursing professional who is a fundamental professional in the assistance of the health service user.

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