



Association of work accidents with the occupational satisfaction of nursing professionals in the hospital area

Associação dos acidentes de trabalho com a satisfação ocupacional de profissionais de enfermagem da área hospitalar

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ABSTRACT

This study aimed to verify the association of occupational satisfaction with the occurrence of occupational accidents among nursing professionals in the hospital area. The method used was a cross-sectional study carried out with hospital nursing professionals, between December 2017 and January 2018. For data collection, an instrument for characterizing workers and the Job Satisfaction Questionnaire S20/23 were used, which were analyzed using descriptive statistics. and inferential. Of the 451 participants, 13.7% suffered an accident at work and the average worker satisfaction was high. The chances of an accident at work were lower among workers with a high perception of occupational satisfaction with the physical environment ($p = 0.046$) and with hierarchical relationships ($p = 0.031$). It was concluded that actions are necessary to promote health, safety and satisfaction of nursing workers, which can positively influence the reduction of occupational accidents, the quality of life of professionals and the assistance offered to users.

Keywords: Accidents, occupational. Nursing. Job satisfaction. Occupational health. Hospital services.

RESUMO

Esta pesquisa objetivou verificar a associação da satisfação ocupacional com a ocorrência de acidentes de trabalho entre profissionais de enfermagem da área hospitalar. Trata-se de um estudo transversal realizado com profissionais de enfermagem hospitalares entre dezembro de 2017 e janeiro de 2018. Para a coleta de dados, utilizou-se instrumento de caracterização dos trabalhadores e o Questionário de Satisfação do Trabalho S20/23, que foram analisados por estatística descritiva e inferencial. Dos 451 participantes, 13,7% sofreram acidente de trabalho, e a média de satisfação dos trabalhadores foi elevada. As chances de ocorrer acidente de trabalho foram menores entre aqueles com alta percepção de satisfação ocupacional com o ambiente físico ($p = 0,046$) e com as relações hierárquicas ($p = 0,031$). Concluiu-se que ações são necessárias para promoção da saúde, segurança e satisfação dos trabalhadores, podendo influenciar positivamente a redução de acidentes do trabalho, a qualidade de vida dos profissionais e a assistência ofertada aos usuários.

Palavras-chave: Acidentes de trabalho. Enfermagem. Satisfação no emprego. Saúde do trabalhador. Serviços hospitalares.

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INTRODUCTION

Socioeconomic changes that have occurred through globalization have influenced the relationship between men and their work, which can impact their physical and mental health. As a result, work activities are carried out in a forced and overloaded manner, generating job dissatisfaction and favoring the occurrence of accidents in work environments¹⁻².

Dissatisfaction at work can lead to several consequences, both personal and professional, and can directly affect the behavior, well-being and health of the worker. The consequences of occupational dissatisfaction are individual, multivariate and may reflect on the individual's psychic dynamics resulting in changes to their health³.

Job satisfaction refers to the result of the employee's assessment of what he/she does, his/her behaviors, attitudes and values that reflect on his/her personal or professional life. It is a pleasant sensation that brings joy and well-being. However, if this emotion is negative or unsatisfactory, it can result in absenteeism, turnover, alcohol or drug addiction and even the occurrence of work accidents³.

In the health area, the hospital environment presents several risks of accidents and illnesses. In this work environment, the nursing team is the professional category that is most exposed to occupational risks. This is because they work long hours, in a hostile and stressful environment, frequently rotate work shifts, among others. These factors can cause worker dissatisfaction and contribute for the occurrence of work accidents among these professionals to be even greater, when compared to other categories⁴⁻⁵.

In nursing, the most identified dissatisfaction factors at work are related to low wages, overwork, poor working conditions, disorganized services and inadequate standards and routines. In addition to these factors, issues related to management such as lack of commitment and encouragement to work, communication problems, lack of integration among colleagues, lack of encouragement and professional

recognition also favor professional dissatisfaction and loss of productivity, which can trigger risk factors for accidents at work⁶⁻⁸.

The loss of productivity at work was the reason for research in the United States, showing its relationship with emotional factors with dissatisfaction⁹. National and international studies have observed the occurrence of occupational accidents with nursing professionals, due to their exposure to psychological problems, such as depression, stress, anxiety, dissatisfaction and low self-esteem^{6,8-9}.

In view of the above, due to the problems that work accidents can cause in the life and health of nursing professionals, as well as the limitation of studies that investigated the possible relations of dissatisfaction with work accidents, there is a need to investigate the relationships between these two factors (accident x dissatisfaction), in order to promote knowledge that favors the promotion of health and safety of these workers and, consequently, the quality of the assistance provided by them to users.

Thus, this study aimed to check the association of occupational satisfaction with the occurrence of work accidents among nursing professionals who work in a hospital environment.

METHODOLOGY

This is a descriptive-analytical and cross-sectional study, developed in a large general philanthropic hospital in a municipality in the south of the state of Minas Gerais, Brazil. This hospital is a reference in urgency and emergency, has 279 adult and child beds; capacity for approximately 1,650 hospitalizations/month covering care in 50 medical specialties, 70% of which are from the Unified Health System (SUS).

The study population consisted of all 784 nursing workers who worked at that hospital, including assistants, nursing technicians and nurses. The inclusion criteria were: nursing workers who had worked at the institution for more than three months, taking into account the required experience time.

Professionals who were on vacation and those on leave for any reason were excluded from the study. Considering these criteria, 333 were excluded, since 137 were on vacation, 57 were on a leave, 124 did not accept to participate in the study and 15 questionnaires were disregarded due to an error in completing them. Thus, the final sample consisted of 451 participants.

Data were collected from December 2017 to January 2018 in all sectors of the hospital at times established by the coordination and in all periods, so that it did not interfere with the progress of activities. The professionals received sealed envelopes, containing two instruments and the Informed Consent Form. A brief presentation of the research was made to each group in the respective work sector.

Two instruments were used for data collection. The first referred to a semi-structured questionnaire with 20 questions, designed to evaluate data on socio-demographic characterization, labor activities and occupational accidents corresponding to the 12 months prior to data collection. This questionnaire was refined and tested in previous research with nursing workers, as made available by Santos et al. (2017)¹⁰.

The second instrument used was the Job Satisfaction Questionnaire S20/23, which is a brief version of Questionnaire S4/82, developed in 1986 in English and translated and adapted into Portuguese in 2008¹¹⁻¹². The instrument consists of 23 items, distributed in three areas: Satisfaction with Hierarchical Relations (11 items), Satisfaction with the Physical Work Environment (5 items) and Intrinsic Satisfaction at Work (4 items). The format of the instrument is a Likert scale, with five response options: totally dissatisfied (1), partially dissatisfied (2), indifferent (3), partially satisfied (4) and totally satisfied (5).

Collected data were entered into an MS-Excel spreadsheet version 2010. For descriptive and inferential statistical analysis, the IBM Statistical Package for the Social Science software, version 25, and R i386 version 3.4.0 were used.

The Mann-Whitney U test compared the scores of intrinsic satisfaction, hierarchical satisfaction and satisfaction related to the physical environment of the groups of variables: professional category, sex, marital status, existence of children, religion, income, other employment and the occurrence of an accident at work. The Kruskal-Wallis test was applied for the variables age group, sector and work shift, length of experience at the institution and in the profession. The association of these same variables and the groups with and without the occurrence of occupational accidents was tested by the Chi-square or Fisher's exact tests.

The occurrence of occupational accidents was considered a dependent variable, and the independent variables, the dimensions of job satisfaction, that is, intrinsic relationship at work, physical environment and hierarchical relationships, which were dichotomized to high and low, considering the median as the cutoff point.

Associations were checked by multiple logistic regression models. Initially, binary logistic regressions were used to verify the univariate association of dependent with independent variables. Subsequently, regressions were repeated in multiple models by inserting the adjustment variables: sex, age and length of professional experience, as they are likely to be confounding in the relationship.

The Hosmer-Lemeshow test checked the quality of the model's fit, in which a higher p-value indicates a better fit¹³. A 95% confidence interval (odds ratio) and a significance level of $\alpha = 0.05$ were defined. To assess the internal consistency of the Job Satisfaction Questionnaire S20/23, Cronbach's alpha was applied, considering $\alpha > 0.70$ as appropriate.

Based on Resolution 466/2012, the study was approved by the Research Ethics Committee of the University of São Paulo, according to Opinion 2.372.958. The hospital institution authorized the research and the workers signed the Informed Consent Form.

RESULTS

The sample consisted of 451 workers, mostly female (84.7%), aged between 19 and 39 years (38.8%, average 32.9 years), married or living with partners (47.9%), Catholics (72.5%), without children (49.7%), with an average monthly family income of R \$ 3,086.03.

With regard to work characteristics, nursing technicians (66.7%) predominated, followed by nurses (28.4%) and nursing assistants (4.9%), with time in the

nursing profession and acting in the institution of up to 5 years (38.3%, 48.4% respectively). Most worked 36 hours a week (71.6%), worked in the morning shift (36.4%), in the sectors of medical and surgical clinic (27.5%) and had no other job (85.8%).

Table 1 lists the distribution of nursing professionals, according to the occurrence of work accidents. Thus, only a part of the workers suffered some type of accident.

Table 1. Distribution of nursing workers according to the characteristics of occupational accidents. Passos, state of Minas Gerais, Brazil

Variables	Frequency	%
Occurrence of occupational accidents (n=451)		
Yes	62	13.7
No	389	86.3
Number of accidents (n=62)		
One	51	82.3
Two	11	17.7
Shift of the accident (n=62)		
Morning	24	38.7
Afternoon	28	45.2
Night	10	16.1
Time of occurrence of the accident (n=62)		
Up to 4 months	28	45.2
5 to 8 months	19	30.6
9 to 12 months	15	24.2
Accident notification by CAT* (n=62)		
Yes	58	93.5
No	4	6.5
Type of occupational accident (n=75)**		
Contact with body fluids	27	36
Injuries by piercing and/or cutting objects	24	32
Contact with chemicals	1	1.3
Contact with medication	2	2.6
Contact with furniture/equipment/patient	4	5.4
Fall	4	5.4
Route - from home to work	6	8.0
Route - from work to home	1	1.3
Others	6	8.0

*CAT - Work Accident Communication. **There was more than one answer per professional.

Among the reasons that caused the accidents, the most cited by nursing professionals were: incorrectly performed procedure/technique (14.3%), not using Personal Protective Equipment (12.8%), patient agitation (12.8%), lack of attention (11.5%), work overload (5.7%), material in an inappropriate place (5.7%) and physical and/or mental exhaustion (4.3%).

Table 2 lists the characterization variables that had a significant association with the occurrence of occupational accidents among those surveyed. Thus, it was possible to perceive that, of all the variables analyzed, only the time of profession and experience in the institution were associated with the occurrence of work accidents.

Table 2. Univariate analysis of occupational variables associated with occupational accidents in hospital nursing professionals. Passos, state of Minas Gerais, Brazil

Variables	Suffered an accident	Did not suffer an accident	p-value	Odds ratio (95% confidence interval)
Time of profession				
Up to 10 years	49 (29.5%)	279 (70.5%)	0.03	13.042 (0.776-19.179)
Over 11 years	11 (12.5%)	106 (87.5%)		1.000
Time working in institution				
Up to 10 years	52 (28.2%)	292(71.8%)	0.03	9.5 (0.561-59.534)
Over 11 years	8 (10.0%)	93 (190.0%)		1.000

According to Table 2, professionals with up to 10 years of experience in nursing were 13 times more likely to suffer an accident at work. Nursing professionals who had worked at the institution for up to 10 years had a 9.4 times greater chance of occupational accidents.

Regarding the satisfaction of nursing professionals, training/updating opportunities and career development were the items of their greatest satisfaction; while the salary and benefits received were the ones that most caused job dissatisfaction.

When analyzing the satisfaction of nursing professionals, in Table 3 it was possible to observe that the average total score for job satisfaction was 3.8, ranging from 1.4 to 5.0. Among the three dimensions, the intrinsic at work and the physical environment, obtained the highest average. It was also found that the internal consistency for all dimensions was satisfactory, which were equal to or greater than the values corresponding to the validation of the instrument.

Table 3. Descriptive statistics of the dimensions related to job satisfaction of nursing professionals. Passos, state of Minas Gerais, Brazil

Dimensions	Mean	Median	Standard deviation	Minimum	Maximum	Alfa-Cronbach
Intrinsic at work	3.9	4.0	0.8	1.0	5.0	0.82
Physical environment	3.9	4.0	0.8	1.0	5.0	0.83
Hierarchical relations	3.7	3.8	0.9	1.0	5.0	0.93
Total score	3.8	3.9	0.8	1.4	5.0	0.94

Table 4 shows the variables that were associated with job satisfaction, according to the three dimensions. Only satisfaction with the physical environment maintained a significant association.

Table 4. Univariate of the dimensions related to job satisfaction of nursing professionals. Passos, state of Minas Gerais, Brazil

Variáveis	Hierarchical relationships		Physical environment		Intrinsic relationship	
	mean(SD)	p-value	mean(SD)	p-value	mean(SD)	p-value
Children*						
Yes	3.6 (0.9)	0.192	3.8 (0.9)	0.035	3.9 (0.8)	0.879
No	3.7 (0.9)		4.0 (0.8)		3.9 (0.8)	
Religion*						
Catholic	3.7 (0.9)	0.154	4.0 (0.8)	0.045	3.9 (0.8)	0.432
Não Católica	3.6 (0.9)		3.8 (0.8)		3.9 (0.8)	
Professional category *						
Nurse	3.7 (0.9)	0.807	4.1 (0.8)	0.003	3.9 (0.8)	0.587
Nursing Technician/Assistant	3.7 (0.9)		3.8 (0.9)		3.9 (0.8)	
Work sector [†]						
Specialized units [‡]	3.7 (0.8)	0.702	4.1 (0.7)	0.005	3.9 (0.8)	0.317
Medical clinic/surgical/ maternity/ pediatrics	3.7 (0.9)		3.8 (0.9)		4.0 (0.8)	
Others [§]	3.7 (0.9)		3.8 (0.9)		3.9 (0.8)	

*Mann-Whitney U test; [†]Kruskal-Wallis test; [‡]Intensive Care Unit (Adult, Neonatal and Coronary), Surgical Center and Hemodialysis;

[§]Emergency Room, Regional Cancer Hospital and Support Sectors

Table 5 lists the unadjusted and adjusted associations between occupational accidents and the dimensions of job satisfaction for nursing professionals.

Table 5. Unadjusted and adjusted associations between occupational accidents and the dimensions of job satisfaction for nursing professionals. Passos, state of Minas Gerais, Brasil

Variables	p-value	<i>Odds ratio</i> ^{unadjusted} (95% confidence interval)	p-value	<i>Odds ratio</i> ^{adjusted} (95% confidence interval)*
Mean	0.099	0.629(0.362-1.091)	0.106	0.627(0.357-1.103)
Intrinsic relationships	0.461	0.813(0.468-1.412)	0.504	0.824(0.467-1.454)
Physical environment	0.046	0.565(0.326-0.989)	0.072	0.593(0.335-1.047)
Hierarchical relationships	0.031	0.536(0.306-0.946)	0.032	0.532(0.299-0.949)

*Hosmer & Lemeshow test: 0.347, 0.169, 0.841, 0.798, respectively; adjusted for sex, age and length of professional experience

In isolation, the high perception of the physical environment and hierarchical relationships decreased the chances of an accident at work. However, when sex, age and length of professional

experience were taken into account, only hierarchical relationships significantly reduced the chances of an accident at work.

DISCUSSION

The sociodemographic and work profile of the population studied and presented in this study is similar to those found in other studies carried out in Brazilian philanthropic hospitals¹⁴⁻¹⁶, which demonstrated a predominance of woman, young, married, childless nursing workers who acted as nursing technicians.

The results of this research indicated that 1.3 out of 10 nursing professionals were injured at work. The accidents occurred, predominantly in the afternoon, with body fluids and/or perforating materials, due to procedures with incorrect technique and lack of personal protective equipment.

Investigations carried out in other Brazilian hospitals found prevalence of accidents at work from 15% to 59.6%^{10,17-18}, which were higher than that obtained in this study (13.7%). As for the predominance of accidents with biological material, a study that evaluated health indicators of workers in the hospital area, due to occupational accidents, found that most accidents were due to exposure to biological, in relation to physical, chemical, mechanical, physiological and psychic workloads¹⁹.

This result may be related to the nursing work process being focused on care activities, in which various invasive procedures are performed, using perforating materials, as well as exposure to body fluids¹⁹⁻²⁰. Although the standard precautionary measures are the first strategies adopted for the prevention of work accidents with potentially contaminated biological material, adherence is low due to individual and organizational factors²¹⁻²³.

It is worth mentioning that other factors can also predispose the nursing team to work accidents. Dealing with human suffering, unhealthy working conditions and the lack of professional recognition, have been relevant factors of interference in the psychic health of nursing workers. These factors can lead to dissatisfaction and, consequently, to the occurrence of work accidents⁶.

Accidents at work occurred to a lesser extent among workers with more than 11 years of professional experience and experience in the institution under study. This result can be justified based on the appropriation of the work process, which is conditioned to the acquisition of skills for the development of work activities. Still, it is important to invest in permanent education programs and in strategies that investigate individual or organizational risks, such as, for example, accidents that occurred in the afternoon and, among those with less professional experience in nursing and in the institution, that can contribute to avoid new accidents in the hospital area^{4,24}.

A study demonstrated that 93.5% accidents were reported through the Work Accident Communication (CAT), which is a positive result due to underreporting, traditionally indicated by the literature¹⁹. It is inferred that workers have recognized the importance of health indicators, as a subsidy of public health policies for workers, so it is important to recognize the need to report the occurrence of an accident at work.

With regard to job satisfaction, the nursing team demonstrated to be satisfied with the training/ updating opportunities, career development offered by the hospital, such as salary and benefits offered. A review study that selected 21 national and international surveys, identified that the main satisfaction factors identified in nursing professionals were: good interpersonal relationships with the team, appreciation, professional recognition, the fact that professionals like the profession and the autonomy in decision making⁸.

It was observed in this study that job satisfaction was associated with the Catholic religion ($p=0.045$), the absence of children ($p=0.035$), the professional category of nurses ($p=0.003$) and the work sector in specialized units ($p=0.005$). Religiosity is fundamental in daily nursing, as it helps to understand the emotional effects of the care process in the face of finitude. Together, faith and

religion act as an anxiolytic about dying and death, making it milder and less conclusive²⁵⁻²⁶.

Considering greater satisfaction due to work in specialized units, the literature indicates that the worker feels gratified and fulfilled when working in these units, for his/her contribution in recovering the health of patients, for the recognition for the work developed and for the opportunity to work as a team²⁷.

Satisfaction with the physical environment and hierarchical relationships decreased the chances of an accident at work. However, when considering sex, age and length of professional experience, only hierarchical relationships significantly reduced the chances of an accident at work.

This means that the characteristics of supervision and management at work influence the occurrence of accidents at work. Just as leaders can positively influence, hierarchical culture can also influence workers' behavior in the opposite direction²⁸. In addition, management can influence factors that promote the safety of workers and patients, such as the patient-nurse ratio and the availability and use of individual and collective protective equipment. These factors make professionals feel safer and experience fewer cognitive failures in the workplace²⁹.

Research identified that the perception of unfavorable organizational climate increases the occurrence of occupational accidents. Moreover, workers who suffered accidents reported lower occupational satisfaction³⁰, corroborating the findings of this research.

In this study, it was confirmed that the hospital environment exposes its workers to various unsafe or adverse conditions, which can cause accidents, illnesses or occupational dissatisfactions. Thus, strengthening cultures related to good working conditions, safety and health in the work environment are always important for the reduction of accidents and occupational pathologies. Thus, workers will have better physical and mental health conditions, which

will contribute to a better quality of care provided to users.

This study had some limitations, such as the type of instrument used, which was selected for its feasibility of application in view of the number of questions. Nevertheless, it was observed during data collection, that the participants had doubts about the meaning of words such as: air conditioning and healthiness, requiring further clarification by the researchers.

Another limiting factor was the cross-sectional design, which limited the establishment of an epidemiological relationship of occupational satisfaction as the cause of the work accident. Thus, it is suggested to carry out further studies to assess the relationship between work accidents and occupational satisfaction, using longitudinal designs, to monitor the worker and determine the cause and effect of the accident and satisfaction.

CONCLUSION

Part of the researched nursing professionals suffered accidents at work and the average satisfaction of these workers was high, especially in the dimensions of intrinsic job satisfaction and physical environment. It was found that the time of profession and time working at the institution had a significant association with work accidents.

The variables children, religion, professional category and work sector were significantly associated with satisfaction with the physical work environment. Significantly lower chances of accidents at work were found among workers with a high perception of occupational satisfaction with hierarchical relationships, regardless of sex, age and time in the profession.

It is imperative to implement actions that promote satisfaction in hospital work, especially in hierarchical relationships. These actions can positively influence the prevention of accidents at work, the productivity, and physical and psychological health

of nursing professionals and, consequently, the final quality of care provided.

Thus, it is believed that with the knowledge produced through this study, managers and nursing workers will be able to better understand the characteristics of job dissatisfaction and its influence on the occurrence of work accidents. With this, it will be possible to take actions to avoid job dissatisfaction and, consequently, illness and work accidents among hospital nursing professionals.

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