



Individual, work-related and organizational factors influencing adherence to standard precautions

Fatores individuais, relativos ao trabalho e organizacionais que influenciam a adesão às precauções padrão

Factores individuales, laborales y organizativos que influyen en el cumplimiento de las precauciones estándar

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ABSTRACT

Introduction: Standard Precautions (SP) are a set of prevention practices that should be applied to all patients. **Aim:** To identify individual, work-related and organizational factors that influence adherence to SP among nursing professionals in a hospital in Minas Gerais. **Outlining:** Cross-sectional, quantitative study using the instrument Psychosocial and Organizational Factors that Influence Adherence to PP with 10 psychometric scales Likert type. Descriptive and correlational analyses were performed. **Results:** The consistency of the instrument was 0.86. The scales presented means with intermediate score. The highest average was the scale “Training in prevention of occupational exposure to HIV” (4.6) and the lowest were “Obstacles to follow SP” (3.9) and “Availability of Personal Protective Equipment (PPE)” (3.8). There was a strong correlation between “Safety Climate” and “Availability of PPE” ($r = 0.719$). **Implications:** Training is essential for adherence to SP; however, it is necessary to identify the other factors that influence this practice.

DESCRIPTORS

Universal Precautions; Nursing, Team; Cross Infection; Health Knowledge, Attitudes, Practice.

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INTRODUCTION

Healthcare-associated Infections (HAI) are one of the most common adverse events related to the care process and have become a serious public health problem, since they increase the length of hospitalization, morbidity, mortality, in addition to compromising patient safety and quality of health services.¹

The main means for control of HAI, in these services, part of the use of Standard Precautions (SP) measures, indicated for the assistance of all patients, as well as Specific Precautions (SPr) used when the transmission pathway of the infectious agent is not completely interrupted by the use of SP.²

SP is a set of prevention practices that must be applied regardless of suspected or confirmed diagnosis of infection. This consists of hand hygiene (HH), cough etiquette, the use of Personal Protective Equipment (PPE) - whenever the risk of contact or blood splash or any other organic matter is anticipated -, the safe management of perforating, cleaning and disinfection of surfaces and articles of health, safe injectable practices, as well as the proper use of equipment, instruments and patient care devices.²

At the same time, it is noticeable that health professionals are exposed daily to various dangers in service delivery environments.³ In this sense, the knowledge of SP for nursing professionals becomes extremely important, direct contact with the patient during care,⁴ which brings the need for health institutions to increase awareness of the nursing team's perception of patient safety management and adherence to SP.⁵

It is known that the use of SP permeates all the activities of the nursing professional and, although they hold the knowledge, there is still no adequate adherence. From this perspective, it is essential to understand which factors harmful to this adherence are present in the different work scenarios and, from this, which strategies can be implemented to increase it.⁶

Thus, the present study aimed to identify the individual, work-related and organizational factors that influence adherence to SP among nursing professionals of a large general hospital in Minas Gerais.

METHOD

This is a cross-sectional, quantitative study conducted in a large hospital in Minas Gerais. At the time of collection, the hospital had 545 nursing professionals.

The sample was of the type of convenience⁷ and included nursing professionals (nurses, technicians and nursing assistants) who worked in direct assistance to patients. Regarding participation in the study, the following exclusion criteria were established: (1) professionals who were on vacation, (2) away from work and (3) who did not have experience in patient care.

Data collection took place from July to October 2017, in the respective workplaces of the professionals and at times previously scheduled by the researchers, considering day and night shifts.

For data collection, the instrument Psychosocial and Organizational Factors that Influence Adherence to Standard Precautions was used.⁸ The scale has professional and sociodemographic variables, in addition to 10 psychometric scales of the Likert type - which include 57 items -, and evaluate the influence of individual, work-related and organizational factors, whose response options vary progressively from 1 (to "totally agree") to 5 (to "totally disagree").

The psychometric scales contained in the instrument are grouped into individual, work-related and organizational factors. The scales on individual factors are: Adherence to SP, Knowledge of occupational transmission of HIV, Risk perception, Efficacy of prevention, Risk personality. To measure the influence of factors related to work are: Obstacles to follow the SP, Workload. And to measure the organizational factors: Safety climate, Training in

prevention of occupational exposure to HIV and Availability of PPE. These scales are classified into three scores, being “high” (≥ 4.5), “intermediate” (between 3.5 and 4.49) and “low” (< 3.5).

The descriptive analysis included the calculation of frequency distribution and measures of central tendency and dispersion. The Simple Student’s T Test was used to compare means of the scores of the scales according to position, institution time and if it received training on the SP. To test the reliability of the instrument and scales, Cronbach’s alpha was calculated, adopting 0.60 as the acceptance limit.⁸ Pearson’s correlation was used to verify the relationship between the scores of the scales, adopting the following classification: “weak” (< 0.3); “moderate” (0.3 to 0.59); “strong” (0.6 to 0.9) and “perfect” (1.0).⁹ p values < 0.05 were considered statistically significant. All analyses were completed using the Statistical Package for the Social Sciences (SPSS) version 20.0.

The research was conducted respecting all ethical principles provided for in Resolution n. 466/2012, and data collection occurred after approval in the Ethics and Research Committee of the proposing and co-participating institution (hospital), under opinions of n. 2,000,309 and n. 2,083,036, respectively.

RESULTS

The participants were 89 professionals, being 12 excluded due to the provision of incomplete data in the research instruments, making it impossible to analyze. Thus, information regarding 77 professionals was analyzed.

The participants were predominantly female (77.9%), nursing technicians (58.6%), aged between 21 and 30 years (48.1%). Regarding the educational level, 52.7% of nursing professionals had high school. With regard to working time, 75.4% of the participants had more than four years of profession, 63.7% of these had more than four years of service in the study institution. Of the participants, 85.7%

reported not having another bond, 97.3% said they had received training on SP, and for 49.4% of these training occurred in a period of less than one year.

It was verified that the scales presented means with intermediate score (mean between 3.5 and 4.49), except for the scale “Training in prevention of occupational exposure to HIV”, which obtained a high score (mean of 4.6). The scales “Obstacles to follow the SP” and “Availability of SPE” presented the lowest averages (3.9 and 3.8, respectively). However, if analyzed according to medians, four scales presented high scores: “Knowledge of occupational HIV transmission”, “Risk perception”, “Risk personality” and “Training in prevention of occupational exposure to HIV”. The data are shown in Table 1.

Table 1 - Distribution of scales of individual, work-related and organizational factors that influence adherence to SP, with descriptive analysis of the items that make up the scales in a large general hospital in Minas Gerais. 2017.

Scales	Mean \pm SD	Median (p25-p75)	Minimum-Maximum	Cronbach's alpha (α)
Individual factors				
Adherence to SP*	4.3 \pm 0.3	4.4 (4.2-4.6)	3.2-4.8	0.53
Knowledge of occupational HIV transmission	4.1 \pm 0.9	4.5 (4.0-4.9)	1.0-5.0	0.94
Risk perception	4.4 \pm 0.6	4.7 (4.0-5.0)	2.3-5.0	0.78
Prevention effectiveness	4.1 \pm 0.7	4.3 (3.7-5.0)	2.3-5.0	0.54
Risk personality	4.3 \pm 0.9	4.9 (4.0-5.0)	1.0-5.0	0.47
Work-related factors				
Obstacles to following SP*	3.9 \pm 0.8	4.0 (3.3-4.7)	1.8-5.0	0.78
Work load	4.1 \pm 0.7	4.3 (4.0-5.0)	1.0-5.0	0.83
Organizational factors				
Security climate	4.2 \pm 0.6	4.3 (4.0-4.8)	1.8-5.0	0.86
Training in prevention of occupational exposure to HIV**	4.6 \pm 0.4	5.0 (4.0-5.0)	3.0-5.0	0.68
Availability of PPE***	3.8 \pm 0.7	3.9 (3.5-4.3)	1.8-5.0	0.65
Grand Total of the scale	4.2 \pm 0.3	4.2 (3.9-4.5)	3.6-4.9	0.86

* SP - Standard Precaution; ** HIV - Human Immunodeficiency Virus; *** PPE - Personal Protective Equipment.

Source: Direct research.

It is observed that the internal consistency of the instrument was strong ($\alpha = 0.86$), but in three scales, which are related to individual factors, showed low reliability, being “Adherence to SP” ($\alpha = 0.53$), “Efficacy of prevention” ($\alpha = 0.54$) and “Personality risk” ($\alpha = 0.47$).

In the association of scales involving individual factors with the professional category, institution time and training on SP, a statistically significant difference was observed only in the association of training on the theme with the scale “Adherence to SP” ($p = 0.037$). The professionals who received training had higher averages (4.3) compared to those who did not have training (3.8).

As for the correlation between the scales, as shown in Table 2, it was found: strong correlation between “Safety climate” and “SPE availability” ($r = 0.719$); moderate correlation between “Training in prevention of occupational exposure to HIV” and “Adherence to SP” ($r = 0.349$), “Safety climate” ($r = 0.502$) and “Availability of SPE” ($r = 0.499$) and, “Availability of SPE” and “Adherence to SP” ($r =$

0.328); weak correlations between the scales “Safety Climate” and “Adherence to SP” ($r = 0.249$), “Safety Climate” and “Knowledge of occupational HIV transmission” ($r = 0.256$), “Risk perception” and “Training in prevention of occupational exposure to HIV” ($r = 0.250$) and also between “Effectiveness of Prevention” and “Availability of SPE” ($r = -0.234$).

Table 2 - - Pearson's Correlation Coefficient (r) of the relationship between the variables that make up the scale.

Factors	Scales	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Individual	Adherence to SP (1)	1	-0.06	0.120	-0.120	-0.090	0.266	0.004	0.249*	0.349*	0.328*
	Knowledge of occupational HIV transmission (2)		1	0.125	0.108	0.157	0.202	-0.113	0.256*	0.220	0.150
	Perception of risk (3)			1	0.193	0.099	0.145	0.333	0.111	0.250*	0.125
	Prevention effectiveness (4)				1	0.202	0.004	0.167	-0.190	0.110	-0.234*
Work-related	Risk personality (5)					1	0.201	-0.055	0.043	0.060	-0.072
	Obstacles to following the SP (6)						1	0.069	0.434*	0.247*	0.389*
	Workload (7)							1	-0.212	-0.020	-0.123
Organizational	Safety climate (8)								1	0.502*	0.719*
	Training in prevention of occupational exposure to HIV (9)									1	0.499*
	PPE availability (10)										1

Source: Direct search.

The findings related to the scale “Adherence to SP” can be observed in Table 3. It appears that all indicated the item that always or almost always “Discards sharp objects in its own containers” and “Carefully manipulates scalpels or other sharp objects” and that 98.7% indicated “Wash hands after removing disposable gloves”. Regarding the item “Refill used needles”, 80% of professionals reported never performing such activity. Regarding the item “Follow the SP with all patients, whatever their

diagnosis” 92.1% of participants reported that almost always or always follow these precautions, however, on the item “Treat all patients as if they were infected with HIV” 69.5% almost always or always follow this form of treatment. In the item on “Wear protective apron, when there is a possibility of staining clothes with blood or other secretions”, 32.5% indicated that they never, rarely or sometimes use the apron.

Table 3 - Distribution of responses by nursing professionals at a large hospital in Minas Gerais (n=77), according to the items on the Adherence to Standard Precautions scale. 2017.

	Always		Often		Sometimes		Rarely		Never	
	N	%	N	%	N	%	N	%	N	%
1. Dispose of needle-sharp objects in proper containers.	77	100.0	0	0	0	0	0	0	0	0
2. Treat all patients as if they were infected with HIV.	40	55.6	10	13.9	13	18	2	2,8	7	9,7
3. Follow standard precautions (SP) with all patients, whatever their diagnosis.	52	68.4	18	23.7	4	5,3	1	1,3	1	1,3
4. Wash your hands after removing disposable gloves.	72	93.5	4	5.2	0	0	1	1,3	0	0
5. Wear a protective apron when there is a possibility of soiling clothes with blood or other secretions.	42	54.5	10	13.0	15	19,5	5	6,5	5	6,5
6. Use disposable gloves when there is a possibility of contact with blood or other secretions.	70	92.2	3	3.9	2	2,6	0	0	1	1,3
7. Wear protective glasses when there is a possibility of contact with blood or other secretions.	54	71.1	9	11.8	11	14,5	1	1,3	1	1,3
8. Use a disposable mask when there is a possibility of contact with blood or other secretions.	50	65.8	16	21.1	8	10,5	1	1,3	1	1,3
9. Immediately clean up any spilled blood or other secretions with disinfectant.	59	76.6	11	14.3	6	7,8	1	1,3	0	0
10. Carefully handle scalpels or other sharp objects.	76	98.7	1	1.3	0	0	0	0	0	0
11. Recap used needles.	1	1.3	1	1.3	8	10,7	5	6,7	60	80
12. Wears gloves to puncture a patient's vein.	66	85.7	6	7.8	2	2,6	2	2,6	1	1,3
13. It considers materials that have been in contact with the saliva of patients to be contaminated.	63	82.8	7	9.2	3	4,0	0	0	3	4,0

Source: Direct search

DISCUSSION

There is a predominance of females - culturally and historically more present in the area of nursing -, which corroborates other studies involving such professionals.^{6,10-11} The majority presence of nursing technicians is also found in studies with the professional category,^{6,12} because they comprise the majority of nursing professionals.¹³

As for the employment relationship, the results of this study corroborate a study conducted in a teaching hospital, in which 79.6% of the professionals stated that they did not have another employment relationship.¹¹ workload did not occur with the interviewees. A survey conducted in Rio de

Janeiro, which evaluated compliance with SP by health professionals, identified that professionals with more than one employment relationship and high workload showed compliance with these measures.¹⁴

It is noteworthy that the reliability of the scale used was strong, a result similar to the research conducted with nursing professionals of a university hospital, in which the reliability of the scales ranged between 0.650 and 0.905.⁶

In the present study, it is verified that most of the interviewees had training on SP in the last year, and those who received training in the theme reached a higher average in the scale "Adherence to

SP”, corroborating another study.⁶ Permanent education activities on SP measures are essential for professionals and for the institution, and should be carried out on professional admission, with annual review and whenever necessary.^{12,14-15}

However, despite the professionals claiming to have received training on SP, the referred adherence to such precautions had an intermediate score, a result similar to another Minas Gerais study¹¹ in which the “Adherence to SP” scale score was also intermediate (4.41). Still on adherence to SP and training, a research carried out in a university hospital in 2016, pointed out that despite training with professionals on the subject, there was no total adherence to SP measures,⁶ which are important for ensuring quality and safe assistance.

It is worth mentioning that in a survey conducted in a university hospital in the Federal District, knowledge did not guarantee adherence to SP, and gaps were identified in relation to the knowledge of nurses from a critical patient unit and adherence to these practices.¹⁶

In another study conducted in Minas Gerais, there was no difference in adherence to SP between the professional category and the time of the professional in the institution.¹¹ In this study, there was no difference in the scores of all scales that assess individual factors, according to these variables; even with the SP scale, there was only an association of training in the theme with the scale “Adherence to SP”. Different from what was found, a study conducted with 522 nursing professionals from two Brazilian hospitals, found that professional category and schooling were factors associated with compliance with and there was greater compliance among technicians than among nurses.¹²

Authors point out that low adherence to PE is related to lack of habit, lack of training, skin irritation and discomfort to use, which, in addition to the absence of certain equipment and lack of knowledge and time, make the work environment unsafe.^{6,11}

Individual factors such as lack of awareness, carelessness and low risk perception, that is, the ability to perceive occupational exposure situations and to take protective measures can influence adherence to SP,¹⁷ corroborating the present study, in which the scale of “Risk perception” presented an intermediate score.

As for the factors related to work, with regard to the scale “Obstacles to follow the SP”, it appears that similarities were found in the score with another survey conducted with dental professionals in primary care. These professionals considered routine work as an obstacle to adhere to SP.¹⁸

The scales of organizational factors presented different scores, and “Safety Climate” and “Availability of PPE” presented intermediate score, while the scale “Training in prevention of occupational exposure to HIV” presented a high score. A study conducted in a public university hospital showed similar scores for these factors, except for the one related to “Training in prevention of occupational exposure to HIV” which also obtained an intermediate score.¹⁷

Regarding the scale “Availability of PPE”, it is considered that the lack or insufficiency of adequate material resources are reasons for non-adherence to SP.¹¹ In this sense, it should be noted that the non-use of PPE or its misuse can significantly increase the risk of accidents.¹⁹ Thus, the availability of PPE, health education and the infrastructure necessary for safe behaviors are factors that provide and increase adherence to SP.²⁰

The results of this study allow us to infer that the greater the availability of SPE in the sectors, the greater the perception of safety in the work environment and the greater the adherence to SP measures, as evidenced by the moderate and strong correlations found. At the same time, the training offered also favors adherence to SP and allows, consequently, a greater climate of security in the institution. These data were similar to those found in a study conducted in a teaching hospital in 2016, in

which it was observed that the favorable institutional climate, added to periodic training and increased availability of PPE, can increase adherence to SP measures.⁶

With regard specifically to the activities of adherence to SP, it appears that most professionals do HH, after removing disposable gloves, do not refill needles. In addition, all interviewees stated correct disposal similar to other studies.^{11-12,14,16} Corroborating other authors,¹⁶ these results reinforce the need to maintain updates on occupational risks, patient safety and accident prevention, as they contribute to the reorientation of inadequate conduct of professionals and the consequent improvement of the quality of care offered and working conditions.

Researchers pointed out difficult factors that impact adherence to HH, such as inadequate supply of inputs, absence of antiseptic dispensers near the patient's bed and deficiency of information materials on the practice of HH.²¹

With regard to needle refilling, a study conducted in two hospitals in the State of Rio de Janeiro, showed that about 24.5% of professionals rarely, or sometimes, perform a risky practice,¹⁴ a result much higher than that found in this research in which 1,3% of participants reported that they always do it. In a study conducted in Malaysia, needle refilling was analyzed by health professionals as an important risk factor for injury, demonstrating that such practice should be avoided.

RESUMO

Introdução: As Precauções Padrão (PP) são um conjunto de práticas de prevenção que devem ser aplicadas a todos os pacientes. **Objetivo:** Identificar os fatores individuais, relativos ao trabalho e os organizacionais que influenciam a adesão às PP entre os profissionais de enfermagem em um hospital de Minas Gerais. **Delineamento:** Estudo transversal, quantitativo que utilizou o instrumento Fatores Psicossociais e Organizacionais que Influenciam a Adesão às PP com 10 escalas psicométricas tipo *likert*. Foram realizadas análises descritivas e correlacionais. **Resultados:** A consistência do instrumento foi de 0,86. As escalas apresentaram médias com escore intermediário. A maior média foi a da escala "Treinamento em prevenção da exposição ocupacional ao HIV" (4,6) e as menores foram as de "Obstáculos para seguir as PP" (3,9) e de "Disponibilidade de Equipamento de Proteção Individual (EPI)" (3,8). Constatou-se correlação forte entre "Clima de segurança" e "Disponibilidade de EPI" ($r = 0,719$). **Implicações:** Treinamentos são imprescindíveis para adesão às PP, entretanto, é necessário identificar os demais fatores que influenciam essa prática.

DESCRITORES

Precauções Universais; Equipe de enfermagem; Infecção Hospitalar; Conhecimentos, Atitudes e Prática em Saúde.

It is considered as a limitation of this study the fact that few instruments were collected and adequately completed, although the approach to professionals has occurred at various times of the working day, and some professionals who initially agreed to participate in the study, did not complete their participation in the research. Despite the relevance of these results, it is considered that the sample was small and the result cannot be generalized.

CONCLUSION

Training on the subject is essential and influences adherence to SP, however, it is considered relevant that the institution identifies and acts on other factors that influence the compliance with this practice.

Still on the training, it is inferred that innovative strategies, with the use of active methodologies and that are significant for professionals, should be carried out, since although training influences adherence to SP, greater adherence to these measures is still expected.

It can be concluded that adherence to SP, reported by professionals, had influence of individual, work-related and organizational factors that had intermediate score.

RESUMEN

Introducción: Las Precauciones Estándar (PE) son un conjunto de prácticas de prevención que deben aplicarse a todos los pacientes. **Objetivo:** Identificar los factores individuales, relativos al trabajo y los organizacionales que influyen en la adhesión a las PE entre los profesionales de enfermería en un hospital de Minas Gerais. **Delineación:** Estudio transversal, cuantitativo que utilizó el instrumento Factores Psicosociales y Organizacionales que Influyen la Adhesión a las PP con 10 escalas psicométricas tipo *Likert*. Se realizaron análisis descriptivos y correlacionales. **Resultados:** La consistencia del instrumento fue de 0,86. Las escalas presentaron medias con puntaje intermedio. El mayor promedio fue el de la escala “Entrenamiento en prevención de la exposición ocupacional al VIH” (4,6) y las menores fueron las de “Obstáculos para seguir las PE” (3,9) y de “Disponibilidad de Equipo de Protección Individual (EPI)” (3,8). Se constató una fuerte correlación entre “Clima de seguridad” y “Disponibilidad de EPI” ($r = 0,719$). **Implicaciones:** Los entrenamientos son imprescindibles para adherirse a las PE, sin embargo, es necesario identificar los demás factores que influyen en esa práctica.

DESCRITORES

Precauciones Universales; Grupo de Enfermería; Infección Hospitalaria; Conocimientos; Actitudes y Prácticas en Salud.

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There are no conflicts of interest to declare.