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SOCIO-DEMOGRAPHIC AND PROFESSIONAL DETERMINANTS IN PATIENT SAFETY CULTURE

DETERMINANTES SOCIODEMOGRÁFICOS E PROFISSIONAIS NA CULTURA DE SEGURANÇA DO PACIENTE

DETERMINANTES SOCIODEMOGRÁFICOS Y PROFESIONALES DE LA CULTURA DE SEGURIDAD DEL PACIENTE

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ABSTRACT

Objective: To evaluate patient safety culture from the perspective of health professionals and to verify the association of safety culture with sociodemographic and professional characteristics. **Methods:** A cross-sectional, quantitative study was carried out with a sample of 57 health professionals, using the Safety Attitudes Questionnaire (SAQ), validated for Brazil. Univariate and bivariate analysis, analysis of variance and correlation were performed. **Results:** The overall mean score of the instrument was 69.93. The domain with the best score was Job Satisfaction (80.70) and the one with the lowest score was Stress Recognition (64.80). There were five domains of the instrument with a lower mean score than considered ideal in the literature. **Conclusion:** There was no significant correlation between professional characteristics and the overall score or the score of isolated domains. The safety culture was considered unsatisfactory and highlighted the domains with major weakness according to the SAQ: Stress Recognition, Perceptions of Management, and Working Conditions.

Keywords: Patient Safety; Safety Management; Health Personnel.

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RESUMO

Objetivo: avaliar a cultura de segurança do paciente na ótica dos profissionais de saúde e verificar associação entre a cultura de segurança e características sociodemográficas e profissionais. **Métodos:** Estudo transversal, quantitativo, cuja amostra foi de 57 profissionais da saúde. Foi utilizado o questionário *Safety Attitudes Questionnaire* (SAQ*),* validado para o Brasil. Foram realizadas análises univariadas e análises bivariadas, análise de variância e correlação. **Resultados:** O escore geral médio do instrumento foi 69,93 pontos. O domínio com melhor escore foi Satisfação no Trabalho (80,70) e com menor escore foi Percepção do Estresse (64,80). Verificaram-se cinco domínios do instrumento com escore médio menor que o considerado ideal pela literatura. **Conclusão:** Não houve correlação significativa entre as características profissionais e o escore geral ou domínios isolados. A cultura de segurança foi considerada não satisfatória e evidenciou os domínios com maior fragilidade segundo o SAQ: Percepção do Estresse, Percepção da Gerência e Condições de Trabalho.

Descritores: Segurança do Paciente; Gestão da Segurança; Pessoal de Saúde.

RESUMEN

Objetivo: Evaluar la cultura de seguridad del paciente desde la perspectiva de los profesionales de la salud y evaluar la asociación entre la cultura de la seguridad y las características sociodemográficas y profesionales. **Métodos:** Estudio transversal, cuantitativo, con una muestra de 57 profesionales de la salud. El cuestionario utilizado actitudes Seguridad Questionnaire (SAQ), validado para Brasil. Se realizaron análisis univariado y bivariado, análisis de varianza y de correlación. **Resultados:** La media de puntuación total del instrumento fue de 69.93 puntos. La mejor puntuación de dominio fue la satisfacción en el trabajo (80.70) y la más baja puntuación fue el estrés percibido (64.80). Hubo cinco áreas del instrumento con una puntuación media más baja que la considerada ideal para la literatura. **Conclusión:** No hubo correlación significativa entre las características profesionales y la puntuación en general o en áreas aisladas. La cultura de seguridad se consideró insatisfactoria y mostró las zonas con mayor debilidad El Estrés Percibido, La Percepción de La Administración y Las Condiciones de Trabajo, de acuerdo con la SAQ.

Palabras clave: Seguridad del Paciente; Gestión de la Seguridad; Personal de Salud.

INTRODUCTION

In recent years, patient safety has become a priority in health care. Although health care brings benefits to both patient and health professional, the occurrence of errors can cause serious damage to those who make use of it.[1]

Adopting a safety posture has become an indispensable condition to avoid adverse events (AEs).[2] In order to achieve an effective change in health professionals' posture towards safe attitudes, it is necessary that they develop knowledge and skills that allow them to identify the possibility of an error occurring and know how to act when they witness failures that might compromise patient's welfare.[3]

Knowing how safe a health institution is has become a challenge, considered a priority by policymakers, health professionals, and managers. It thus becomes necessary to observe both individual and professional aspects that negatively impact the implementation of an environment with safe actions, and act on them to plan a quality health care.[4]

In addition to that, other factors in the institutional and environmental spheres may be related to the adoption of a safety culture, such as professional stress, teamwork, job satisfaction, the institution's management structure, and working conditions.[5]

In order to know the reality of each hospital institution and formulate a safety-oriented work plan, it is necessary to identify the institutional safety culture. This knowledge allows to establish a situational diagnosis of which factors can influence a safer or less safe posture, as well as identifying aspects that can be improved.

The identification of factors related to patient safety climate is an important tool, capable of diagnosing factors requiring improvement inside health institutions and among professionals, assuring a safe, quality health care to patients. Nevertheless, there is a clear lack of studies in Brazil carried out with instruments to measure safety climate in health institutions.[5]

Therefore, a necessity arises to measure institutional safety culture and verify if it is related to sociodemographic and professional factors. In this context, this research aimed at evaluating patient safety culture from the perspective of health professionals and verifying the association of safety culture with sociodemographic and professional characteristics.

MATERIAL AND METHODS

A cross-sectional, analytical study with a quantitative approach was carried out in a small-sized private teaching hospital treating high complexity patients, located in the state of Minas Gerais, Brazil. The institution has 50 beds and 81 health professionals, who work in direct patient care, including nurses, nursing technicians, physicians, nutritionists, pharmacists, psychologists, physiotherapists, social workers, pharmacy technicians and radiology technicians. The criteria for inclusion were having worked in their unit for more than 1 month and having a work week of at least 20 hours.

The target population (N) was composed of 81 professionals and the responding sample (n) that participated in the study was 57. Participants were selected by convenience sample, according to the professionals' acceptance to participate in the research.

For sample calculation, a positive Pearson correlation coefficient r = 0.4 was considered between the number of years of education and the total patient safety score, with a significance level of 0.05 and a Type II error of 0.1, resulting in an a priori statistical power of 90%. A sample size of 61 was determined using PASS 2002 software. However, due to losses in sample size, the final number of participants was 57.

The following diagram represents the losses and exclusions of the survey (Figure 1):

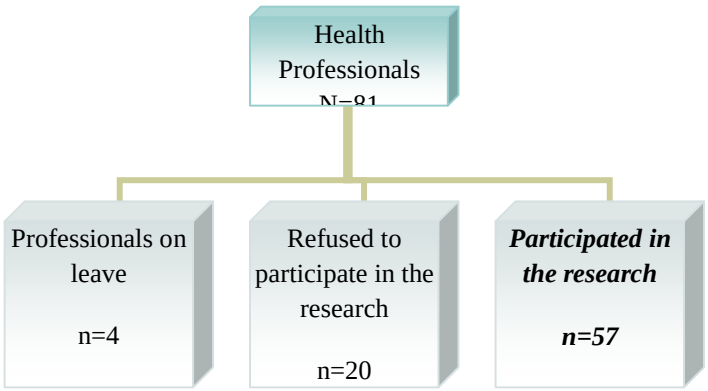

Figure 1: Flowchart of the sample.

The data were obtained using the instrument called Safety Attitudes Questionnaire (SAQ), validated for Brazilian Portuguese.[6] The questionnaire contained 41 items, corresponding to six domains: 1. Teamwork Climate (quality of relationship and collaboration among the members of a team); 2. Safety Climate (professional's perception of organizational commitment to patient safety); 3. Job Satisfaction (positive view of the workplace); 4. Stress Recognition (acknowledgment of how stressors influence performance at work); 5. Perceptions of Management (approval of managerial or administrative actions in the unit where the professional works or in the hospital) and 6. Working Conditions (quality of the work environment).[1]

The response to each item can be in the five-point Likert scale ("Disagree Strongly", "Disagree Slightly", "Neutral",

"Agree Slightly", "Agree Strongly") or "Not Applicable". The scale final score ranges from 0 to 100, where 0 is the worst perception of the safety climate and 100 is the best perception. According to the original authors of the instrument, scores higher or equal to 75 are considered positive.[7]

To ensure participants' anonymity, the Free and Informed Consent (FIC) forms, once signed, were kept apart from the data collection instrument (SAQ), in a separate envelope. For data collection, after the FIC forms were signed, the SAQ was delivered to the participants for them to complete it after working hours, so that their professional activities would not be affected. A 24-hour deadline was set for the completed instruments to be returned to the researchers.

For a characterization of the sample, a form about sociodemographic and professional aspects was filled at the moment when the professional delivered the completed SAQ.

The research data were validated by double typing on an Excel® for Windows® electronic spreadsheet, and then processed and analyzed in the Statistical Package for the Social Sciences (SPSS) software version 19.0 for Windows®. To calculate the SAQ scores by domain, the responses for the items of each domain were summed and the result was divided by the number of items corresponding to each domain, based on the formula (*m*-1)x25, where *m* is the mean of the domain items, ranging from 0 to 100.

To evaluate the influence of categorical variables over safety scores, the Student's t-test was used for dichotomous categorical variables and the Spearman correlation test for ordinal variables. The analyses were considered statistically significant when $p \leq 0.05$.

This study was approved by the Human Subjects Ethics Committee of the Federal University of Triangulo Mineiro (CEP-UFTM), Protocol no. 2306, in compliance with Brazilian Ministry of Health Resolution no. 196/96 on research with human subjects, and received financial support from the Minas Gerais State Research Foundation (FAPEMIG).

RESULTS

Sociodemographic and professional aspects of the healthcare team

Most health professionals participating in the study, 42 (73.7%), were

female and 36 (63.2%) worked only with adult patients. Most professionals were part of the nursing team: 33 nursing technicians (57.89%) and 9 nurses (15.79%).

Among the other professionals, 6 were pharmacy technicians (10.53%); 2 were physicians (3.51%) and 2 were nutritionists (3.51%). The remaining participants were one psychiatrist, one radiology technician, one pharmacist, one physiotherapist and one social worker. Most professionals, 37 (64.9%), worked only in direct patient care.

With regards to professional education, 20 (35.1%) had completed it between 5 and 10 years prior to the research. Most participants, 41 (71.9%), had no other employment relationship, and 44 (77.2%) did not have a graduate degree.

With regards to the working area, 27 (47.4%) worked in semicritical care units and 17 (29.8%) in critical care units. Most professionals, 14 (24.6%) had between 3 and 4 years of professional activity. There was a prevalence of 1 to 2 years of employment relationship with the institution where the research was carried out: 14 participants (24.6%).

Table 1 below presents the research participants' sociodemographic and professional characterization.

Table 1. Sociodemographic and professional characteristics of the research participants. Minas Gerais, Brazil, 2014.

Variables		n	%
Gender	Male	15	26.3
	Female	42	73.7
Profession	Nursing Technician	33	57.8
	Nurse	9	15.7
	Pharmacy Technician	6	10.5
	Physician	2	3.5
	Nutritionist	2	3.5
	Radiology Technician	1	1.8
	Psychologist	1	1.8
	Pharmacist	1	1.8
	Physiotherapist	1	1.8
	Social Worker	1	1.8
Main Activity	Adult care	36	63.2
	Pediatric care	5	8.8
	Both	16	28.1
Professional Activity	Only patient care	37	64.9
	Only administrative work	3	5.3
	Both	17	29.8

Working Area	Surgical ward	5	8.8
	Adult Emergency	1	1.8
	Adult ICU	11	19.3
	Surgical Clinic	2	3.5
	Medical Clinic	13	22.8
	Nursery	2	3.5
	Pediatric ward	1	1.8
	Gynecology and Obstetrics	9	15.8
	Sound and Imaging Service	1	1.8
	Nutrology	4	7.0
	Infection Control Committee	1	1.8
Time working in the specialty	Less than 6 months	7	12.3
	6 to 11 months	9	15.8
	1 to 2 years	13	22.8
	3 to 4 years	14	24.6
	5 to 10 years	9	15.8
	11 to 20 years	2	3.5
	21 years or more	3	5.3
Time working in the institution	Less than 6 months	13	22.8
	6 to 11 months	10	17.5
	1 to 2 years	14	24.6
	3 to 4 years	5	8.8
	5 to 10 years	12	21.1
	11 to 20 years	3	5.3
Time since degree	6 to 11 months	2	3.5
	1 to 2 years	11	19.3
	3 to 4 years	15	26.3
	5 to 10 years	20	35.1
	11 to 20 years	6	10.5
	21 years or more	3	5.3
Graduate studies	Yes	13	22.8
	No	44	77.2
Type of graduate degree	*Lato Sensu*	13	22.8
	Stricto Sensu	-	-
	Not applicable	44	77.2
Other Employment Relationship	Yes	16	28.1
	No	41	71.9

Safety Attitudes Questionnaire (SAQ) Analysis

The overall mean score obtained with the instrument was 69.93 (S = 15.64), with a minimum of 18.13 and a maximum of 92.68.

Based on the scores by domain, it was noted that the third domain, regarding job satisfaction, had the highest score, with a mean of 80.70 (S = 20.09), which represents a positive perception of issues related to one's work.

Domain 4, which assesses stress recognition, presented the lowest score, obtaining a mean of 64.80 (S = 24.30), an unfavorable result, as it indicates that the professionals do not acknowledge how much stressors can influence performance at work.

Table 2 presents the descriptive analysis of the scores by domain.

Table 2. Distribution of the scores by domain. Minas Gerais, Brazil, 2014.

Statistics	Teamwork Climate	Safety Climate	Job Satisfaction	Stress Recognition	Perceptions of Management	Working Conditions
Mean	72.62	71.91	80.70	64.80	65.02	67.32
Standard Deviation	19.78	16.48	20.09	24.30	23.38	29.28
Minimum	20.83	28.57	.00	18.75	9.09	.00
Maximum	100.00	100.00	100.00	100.00	100.00	100.00

Table 3 below displays the frequency of responses to items 14, 33, 34, 35 and 36, considered isolated items according to the rules of the SAQ instrument. Note that most responses were “Agree Strongly”.

Table 3. Frequency of participants’ responses to items that do not correspond to any of the domains. Minas Gerais, Brazil, 2014.

SAQ isolated items n (%)	Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not applicable
14. My suggestions about safety would be acted upon if I expressed them to management.	9 (15.8)	3 (5.4)	19 (33.3)	10 (17.5)	10 (17.5)	6 (10.5)
33. I experience good collaboration with nurses in this clinical area.	1 (1.7)	1 (1.7)	10 (17.5)	13 (22.9)	31 (54.5)	1 (1.7)
34. I experience good collaboration with staff physicians in this clinical area.	2 (3.5)	4 (7.0)	7 (12.3)	18 (31.6)	26 (45.6)	-
35. I experience good collaboration	2	2	9	14	29	1

with pharmacists in this clinical area.	(3.5)	(3.5)	(15.8)	(24.6)	(50.9)	(1.7)
36. Communication breakdowns that lead to delays in delivery of care are common.	8 (14.0)	8 (14.0)	12 (21.1)	16 (28.1)	12 (21.1)	1 (1.7)

With regards to the bivariate analysis, there was no difference between genders (p>0.05) or related to graduate studies (Table 4). There was no correlation between time working in the specialty, time since degree or time working in the institution and the overall score or the score of specific domains (p>0.05).

Table 4. Distribution of the difference of mean related to gender, graduate studies, existence of another employment relationship and professional activity with regards to the overall score and the score by domain. Minas Gerais, Brazil, 2014.

Variable	Overall Score	Teamwork Climate	Safety Climate	Job Satisfaction	Stress Recognition	Perceptions of Management	Working Conditions
Male Mean / (SD*)	55.87 (20.68)	73.19 (19.55)	71.38 (21.68)	76.66 (25.75)	64.86 (18.38)	61.85 (26.09)	61.67 (21.42)
Female Mean / (SD*)	70.83 (14.61)	72.42 (20.09)	75.35 (20.85)	82.14 (17.81)	64.78 (16.29)	66.15 (22.55)	69.35 (28.60)
p†	0.28	0.89	0.35	0.46	0.99	0.57	0.41
Graduate Mean / (SD*)	76.40 (13.46)	74.03 (22.70)	84.07 (11.40)	84.23 (14.41)	73.71 (25.72)	73.60 (18.91)	72.77 (20.80)
Undergraduate Mean / (SD*)	64.08 (32.32)	72.21 (19.11)	83.21 (10.41)	79.66 (21.52)	62.16 (23.53)	62.48 (24.14)	65.81 (21.39)
p†	0.06	0.79	0.22	0.38	0.16	0.09	0.38

*SD: Standard deviation; †p: p-value (Student's t-test), significant if p<0.05; ‡p: p-value (ANOVA test)

DISCUSSION

Among the professionals of the multi-professional team participating in the study, the nursing team was the most prevalent. This fact was also observed in a validation study of the psychometric properties of the German language version of the SAQ instrument, carried out in two university hospitals in Switzerland[8], and in

a study carried out in the region of Murcia, in Spain.[9]

This can be seen as a positive aspect, since these are professionals continuously involved with the patients: the nurses are responsible for assistance and managerial tasks, and the nursing technicians for continuous patient care.[10]

A high turnover of the professionals working at the institution was observed, as well as a prevalent lack of involvement of these professionals with graduate studies. The consequence of the high turnover is felt in the quality decline, due to the frequent hiring of new team members, who do not know the work routine.[11] Similar results were found in a research using the SAQ carried out in a specialized oncology hospital in the state of Minas Gerais, Brazil. Training and specialization update knowledge, which is dynamic in the health field, with the use of new technologies and new discoveries regarding treatments and therapies.[12]

Most professionals had no other employment relationship, which corroborates another study using the SAQ to assess patient safety culture[12] and represents a favorable situation. Having more than one job results in excessive workload, which can generate physical and mental fatigue, as well as stress for the professional, thus leading to patient safety problems. Physical and mental exhaustion has an influence on the increase of absenteeism and turnover, and causes a reduction in the professional's cognitive activity, which negatively impacts patient care quality.[12-13]

With regards to the domains assessed, the Teamwork Climate domain had a mean lower that 75, similar to the result of a study that aimed at investigating the variability in safety culture dimensions between Swiss and US clinical areas.[14] Therefore, the professionals have negative perceptions regarding Teamwork Climate, which may reflect persistent interpersonal problems, a non-cooperative team and workers feeling that their opinions about everyday matters are not taken into account.[14] In hospitals with a good teamwork climate, patient satisfaction, quality and safety of care, and nursing team outcomes are better.[15]

Developing strategies to improve the teamwork environment can represent a low-cost investment.[15] Actions such as the establishment of interdisciplinary team training programs, the creation and maintenance of information transfer programs, the training in problem solving

techniques and the use of continuous training can be important strategies for that purpose.[16]

The Safety Climate domain score was similar to the one found in studies using the SAQ carried out in the United States[14] and India.[17] Therefore, the safety climate in this hospital shows to be deficient with regards to the instrument authors' recommendation. This perception is related to the organizational commitment to patient safety.

To create an environment with a safety climate, it is necessary that the team and its managers work together to provide quality care to the client. Measures such as implementing a policy of error reporting without blame, redesigning administrative processes so that workers feel comfortable voicing their safety concerns, and forming error discussion groups contribute to the improvement and maintenance of the safety climate.[18]

The Job Satisfaction domain registered the highest mean score, 80.70, similar to the results of a study that evaluated nursing professionals' perception of safety climate[1] and a study carried out in an oncology center.[12] This domain assesses the provision of patient care with safety and quality, and the high degree of commitment and performance in the assistance provided.1,13 This result may indicate that, in spite of the low score found for overall safety climate in this study, the professionals are satisfied with the care they provide and their own performance in their roles.

The issue of Stress Recognition, addressed in domain 4, related to extrinsic factors that impact work quality, presented a mean of 64.80, similar to a Brazilian[12] and a North-American[14] study.

This domain reflects the professionals' recognition that situations such as excessive workload and fatigue lead to problems in patient care, thus entailing risks to patients. The higher the pressure in the work environment, the greater the chances of adverse events or even accidents at work that compromise the quality of the assistance provided.[19]

The domain that assesses Perceptions of Unit and Hospital Management, with a mean of 65.02, corroborates the findings of other studies.[1,12,14] This mean is lower than recommended in the literature for a good perception of the domain, which may reflect that professionals consider the administration not concerned about the patients' and their own welfare.[14]

It is important that the professionals be involved with the actions taken by the hospital's and their unit's administration, in order to provide safe patient care.[1] Creating a work environment atmosphere that is conducive to an open dialogue about errors, maintaining a non-punitive environment and continuously training professionals are some of the main actions of the hospital's and unit's administration that can positively impact patient safety.16

With regards to the perception of working conditions, addressed in domain 6, the mean score obtained was 67.32, similar to other studies[1,12,14] and lower than 75, which is considered the threshold for a good perception in that domain. This may mean deficiencies in training programs, unrepresentative participation by the professionals in problem-solving, and inadequate provision of information to patients, indicating the need for improvement actions.[19]

Although there is no statistically significant correlation between sociodemographic and professional variables, we consider important to highlight the high number of professionals that have not pursued a higher degree than their basic professional education.

The job market is increasingly demanding for professional qualification and specialization. Therefore, pursuing a higher degree can add value to the professionals and make them stand out. Seeking continuous training updates knowledge, which is dynamic in the health field, with the use of new technologies and new discoveries regarding treatments and therapies.[12] Moreover, professional training is considered necessary to demystify paradigms that prevent some healthcare professionals from experiencing culture change.20

CONCLUSION

The evaluation of the healthcare team professionals' perception with regards to safety culture was generally negative, that is, it presented a lower score than recommended as ideal in the literature. The institutional safety climate score was compromised mainly by scores regarding perceptions of unit and hospital management, stress recognition and working conditions.

The association of safety culture with sociodemographic and professional characteristics was also investigated and no statistically significant correlation was found between safety climate and gender

(female or male) or education (having a graduate degree or not) with regards to the overall score or the score of each domain. No statistically significant correlation was found between the scores and time since degree, time working in the institution or time working in the specialty.

As a limitation of this study, although simple random sampling was used to obtain the sample size, the number of health professionals making up the investigated population was close to the number of professionals necessary to compose the sample. Since almost one quarter of the target population refused to participate in the research, the data collection may limit the spectrum of analysis. Nevertheless, the established objectives were achieved, and future longitudinal studies are suggested.

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