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RESEARCH ARTICLE

ANALYSIS OF THE CULTURE OF SAFETY AMONG PROFESSIONALS IN AN INTENSIVE CARE UNIT

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ABSTRACT

Introduction: Patient safety culture depends on the actions of various segments of the organizations in order to promote a satisfactory environment for health care and minimize life risks. This study aimed to analyze the perception of safety attitudes of professionals of the adult intensive care unitregarding the time experience and gender. **Methodology:**This is a cross-sectional descriptive study to assess patient safety culture among the multi professional team of the intensive care unit of a tertiary teaching hospital in Brazil, using the Safety Attitudes Questionnaire, with a collection period from July to August 2016. The descriptive and variance analysis presented significance level (α) of 5%.This study was attended by 138 professionals from the following areas: physicians, nurses, nursing technicians, physiotherapists, psychologists, nutritionists and secretaries.**Results:** A total of 143 questionnaires were filled out, of which 138 (96,5%) could be validated. There was a predominance of women in most occupational health care categories and occupational experience time with more than five years (63.0%).The analysis of the safety culture among the professionals showed a mean in the male sex of 60.72 and in the female of 56.76 and in the experience time greater than five years of 57.77 and less than five years of 57, 67.There was strong agreement among males for Teamwork Climate (74.28) and in the group with low experience for Job Satisfaction (75.05). **Conclusions:** The overall mean of the domains was not strengthened for the safety attitude of professionals for both genders. The men presented strengthened for the Teamwork Climate domain, which measures the quality in collaboration and communication. And, there was perception greater in Job Satisfaction domain of the professionals with less than five years of experience and high-Stress Perception in those with more time in the job.

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INTRODUCTION

Patient safety culture relies on broad actions and complex efforts in the various segments of an organization, promoting environmental improvement and risk management for good practice of daily activities, detection, and control in the areas of greatest impact on safety, appropriate use of technology, and professional training (1–10). The optimization of the patient safety climate within an institution provides a protective environment, fundamental to prevent adverse events (11). For this, it is essential for professionals, who deal directly with patients, to have safe attitudes and participate in the necessary modifications, together with managers of health institutions, to obtain positive results in health care (12). Over the past two decades, improving patient safety has become the basis of health care and research focus, due to high mortality rates for health care failures. However, it should be noted that in some hospital areas such as Intensive Care Units (ICUs), they present complex work environments due to the severity of the patients, the need for a multidisciplinary team and complete monitoring, which assigns the team an exhaustive workload under stress. The interaction of these factors can lead to errors in health care with serious consequences for the life of the patient in the ICU (13). This research aimed to evaluate the active professional adult ICU of a tertiary school hospital in Brazil, as well as the general characteristics of the team's training and the perception of patient safety in relation to the time of experience and gender through the safety attitude questionnaire Attitudes Questionnaire - SAQ).

METHODOLOGY

Study design and population:A cross-sectional descriptive study of the patient safety culture research data from theadult ICU of a tertiary school hospital in Brazil,was carried out. The sample was collected after release (number 1638131) by the Education and Research Committee followed by the consent of the Director of Education and Research of the universary public hospital and the medical, nurse, and physiotherapist coordinators of the ICU. The sample consisted of permanent adult ICU professionals, meeting the minimum size required

for a population of 163 individuals (n = 61 professionals to the frequency of 50% ± 10, 10% confidence limits, and confidence interval 95%). The study population was represented by 163 permanent employees of the ICU, one (1) medical coordinator, 37 doctors, three (3) residents, one (1) nursing coordinator, 22 nurses, 80 nursing technicians, one (1) physiotherapy coordinator, five (5) physical therapists, two (2) nutritionists, two (2) psychologists, and 11 secretaries.The following employees were selected to be part of the professional category: physician, nurse, nursing technician, physiotherapist, psychologist, nutritionist and secretary. To obtain an inferential analysis of all categories of professionals, the groups were grouped in smaller numbers as psychologists and nutritionists, forming the category psychologist / nutritionist.

Safety culture measurement: The data collection instrument SAQ (Safety Attitudes Questionnaire - Short Form, 2006, adapted for Brazil) (14) was used to assess the safety culture in health institutions. The SAQ, a self-administered instrument, is composed of two parts. The first includes 41 items; 36 are inserted into six areas, management of perception is divided into perception of hospital management and unit (in this case, Intensive Care), and the remaining five items (14 and 33 to 36) do not belong to a specific domain. Items 2, 11, and 36 are reverse-scored. The second part of the instrument consists of columns for the participant data population for sex, professional category, length of experience, and performance unit.

Statistical analysis: A total of 143 questionnaires were completed, of which 138 (96.5%) could be validated after the exclusion of forms with incorrect and incomplete completions. The descriptive analysis of the SAQ questions was performed by means of the Likert scale responses after inversion of the reverse items (2, 11, 36) in order to summarize the set of obtained data information. The mean value of the quantitative variables and proportions of qualitative variables were calculated. The items of the instruments were analysed by domain/dimension and as a full scale by means or medians according to the population distribution. Inferential statistics were used to verify the pattern of association between the studied variables. In the bivariate inferential analysis, the chi-square test (χ^2) was used to compare the percentage values (qualitative variables) and the t-Student test. In all analyses, a significance level (α) of 5% was adopted,that is, results that presented p-value equal to or less than 5% (<0.05) were considered significant. The strength of association between each of the explanatory variables and the dependent variable was assessed by calculating the prevalence ratio (PR) and 95% confidence interval (95% CI).

RESULTS

A total of 163 permanent professionals of the adult ICU of a tertiary school hospital in Brazilcomplete for physicians, nurses, nursing technicians, physiotherapists, psychologists, nutritionists, and secretaries, 144 were active in their work activities within the stipulated period for data collection, the morning, afternoon and night shifts. A physician refused filling out the form and other officials accepted the invitation, corresponding to a rate of return of 143 (99.3%).These individuals received envelopes (Invitation Letter, informed consent, and the safety attitude questionnaire) and returned them after completion. Of these 143, were validated 138 (96.5%), and properly completed safety attitude questionnaires; the five (5) excluded questionnaires, four technician's nurses and one nurse were incompletely filled. This research included the participation of medical coordination professionals, medical intensivists, medical residents, nursing coordination professionals, nurses, nursing technicians, physiotherapy coordination professionals, physical therapists, psychologists, nutritionists, and secretaries (Table 1). Regarding gender, most of the participants were women (76.1%), being 105 female and 33 male, with a statistically significant difference ($p < 0.01$). There was a predominance of women in most professions, except in the group of physicians with predominance of men and physiotherapists with men and women in equal proportions (Table 2). The distribution of adult ICU professionals as to length of experience, regardless of the professional class, was 51 (37.0%) and 87 (63.0%) for minor and higher or equal to 5 years of professional experience respectively. There was no statistically significant difference ($p > 0.05$) when comparing the length of professional experience and the different professions. In assessing the safety attitude between genders, there was an overall average of 60.72 for men and 56.76 for women with no statistically significant difference ($p > 0.05$). The mean male gender for stress perception was higher than 75 (81.51, $p > 0.05$) and with a positive tendency for the teamwork climate domain (74,28), with a statistically significant difference of $p < 0.05$ between genders. The job satisfaction domain showed a positive and similar trend between men and women (72.83 ± 19.68, 72.24 ± 19.70, respectively, and $p > 0.05$). The female gender did not present strengthened mean in any domain or item without the SAQ domain. The other domains were weakened in relation to the safety attitude, evidencing failures in communication with the worst averages for both genders (Table 3). The averages of the domains with respect to length of experience in the ICU were 57.77 for less than five years and 57.67 for equal to or greater than five years, with no statistically significant difference ($p > 0.05$). It was observed that the group with less than five years of professional experience presented strengthened job satisfaction (75.05). And those with equal or greater than five years of professional experience had a higher average for stress perception (76.47). The other domains presented average lower than 75 for both groups, especially the low perception of hospital management and communication failures that were below 45.00. These findings were not statistically significant. The analysis of the prevalence ratio of the gender and the time of experience in relation to the different domains of the SAQ did not present a statistically significant difference ($p > 0.05$) (Table 4 and 5).

DISCUSSION

The error in health care needs appropriate handling, which should be done initially through the systematic recognition, reporting, analysis and interpretation (16). Next, the results must go through the treatment of the learning culture of these errors and finalized by the resolution of interprofessional communication problems (15). The safety culture of the adult ICU of a University Hospital of Brazil, evaluated quantitatively by the SAQ, was shown to be weakened in the general result, and in need of improvement in all areas. This result was either coincident, or divergent from the data found in the literature, which are explained by the cultural and organizational aspects of each institution (13,15). The SAQ instrument was applied to 144 professionals from the categories of: physician, nurse, nursing technician, physiotherapist, psychologist, nutritionist and secretary.

Table 1 - Number and percentage of valid questionnaires distributed according to the positions and number of employees

	FREQUENCY (N)	FREQUENCY (N)	PERCENTAGE (%)
OFFICE	**PROFESSIONALS**	**QUESTIONNAIRES**	**QUESTIONNAIRES**
		VALID	**VALID**
Medical coordination	1	1	100.0%
Team physician responsible	35	25	71.4%
medical resident	3	3	100.0%
Nursing coordination	1	1	100.0%
Nurse	23	22	95.6%
Nursing Technician	80	67	83.7%
Physiotherapy coordination	1	1	100.0%
Physiotherapist	5	5	100.0%
Administrative	2	2	100.0%
Psychologist	2	2	100.0%
Nutritionist	11	9	81.8%
TOTAL	163	138	84.6%

Table 2 - Distribution of the professional category according to gender

		GENDER			
OFFICE	FEMALE		MALE		TOTAL
	Number		(%) Number	(%)	
Medical	1	9.4	16	11.6	29
Nurse	1	13.	4	2.9	23
Nursing Technician	5	42.	8	5.8	67
Physiotherapist	3	2.2	3	2.2	6
Administrative	7	5.1	2	1.4	9
Psychologist / Nutritionist	4	2.9	0	0.0	4
TOTAL[1]	1	76.	33	23.9	138
1 - p < 0,05)					

Table 3. Distribution of areas by gender, according to the frequency, mean and standard deviation

		FEMALE			MALE	
DOMAINS						
			STANDARD			STANDARD
	NUMBER	MEDIA		NUMBER	MEDIA	
			DEVIATION			DEVIATION
Working climate team[1]	105	67.82	17.37	33	74.28	12.86
Safety Climate	105	56.04	16,00	33	55.32	22.03
Job Satisfaction	105	72.24	19,70	33	72.83	19.68
Stress perception	104	71.28	25.17	33	81.88	21.46
Perception of Unit Management	104	55.87	23.53	33	61.13	26.18
Perception of Hospital Management	104	41.99	21.64	33	44.90	26.39
Working Condition	105	48.29	23.66	33	54.53	23.94
		FEMALE			MALE	
WITHOUT DOMAINS						
			STANDARD			STANDARD
	NUMBER	MEDIA		NUMBER	MEDIA	
			DEVIATION			DEVIATION
Worker perception (item 14)	101	50.99	32.19	32	58.59	30.85
Collaboration between members of						
the care team (33 a 35)	105	69.68	22.65	32	69.79	23.16
Communication failures (36)	103	32.28	30.04	33	34.09	27.82
GENERAL TOTAL	105	56.76	10.99	33	60.72	12,20

The rate of return of this research was 143 (99.3%), due to the refusal of only one (1) professional, showing better than the rates of return of the literature (47.9% to 91%) (6, 11,13,17-22). It is believed that the high rate of return of this research is due to the direct participation of the researcher withco-workers and the fact that the research was conducted in a university hospital where the culture of collaboration with the research is already well established among professionals. Regarding gender in the health services, a high prevalence has been demonstrated in the female gender with nursing, psychology and nutrition professions (19,20). Emphasizing that only nursing represents more than 75% of human resources in the health sector (19,23).

This research, in agreement with the majority of the authors, found a dominantly female teamwork (105, 76.1%) in the adult ICU sector, with a predominance of females in nursing, psychology and nutrition, and males in the physician profession. Most of the authors of the researched literature found a predominance in females, ranging from 62.6% to 97.2% (11,12,13,17-20,24,25). Differently from these findings, PATTERSON et al. (2010) demonstrated a predominance of males in the workteam (71.8%), and CARVALHO et al. (2015) presented a homogeneous distribution between men and women (21,26). According to some authors, the female gender had more personal, social and work stress than the male (27,28). Probably because women are underreported in the decisions

Table 4. Gender analysis in relation to the areas and items without domains of safety attitude questionnaire

		Gender				Confidence interval 95%	
Variable Dependent		Female	Male	P[1]	PR[2]	Lower	Upper
		(Number)	(Number)				
Working climate team	Agree Strongly	41	19	0.07	0.83	0.68	1.01
	Agree slightly	64	14				
Safety Climate	Agree Strongly	16	7	0.43	0.90	0.67	1.20
	Agree slightly	89	26				
	Agree	59	19				
Job Satisfaction	Strongly			1.00	0.98	0.82	1.19
	Agree slightly	46	14				
	Agree	60	21				
Stress perception	Strongly			0.42	0.92	0.77	1.10
	Agree slightly	45	11				
Perception of Unit	Agree	26	12				
	Strongly			0.18	0.86	0.67	1.09
Management							
	Agree slightly	79	20				
Perception of	Agree	10	4				
Hospital	Strongly			0.74	0.92	0.65	1.30
Management	Agree slightly	95	28				
	Agree	15	9				
Working Condition	Strongly			0.11	0.79	0.57	1.09
	Agree slightly	90	24				
Worker perception	Agree	42	15				
	Strongly			0.68	0.94	0.78	1.15
	Agree slightly	59	17				
Collaboration	Agree	57	23				
between members of	Strongly						
				0.10	0.84	0.70	1.01
the care team (33 a 35)							
	Agree slightly	48	9				17

Table 5. Time experience of analysis in relation to the areas and items without domains of safety attitude questionnaire

		Experience Time				Confidence interval 95%	
Variável Dependente				P[1]	PR[2]		
		<5 Years[3]	≥ 5 Years[4]			Lower	Superior
		(Number)	(Number)				
Working climate team	Agree Strongly	21	39	0.72	0.91	0.58	1.42
	Agree slightly	30	48				
Safety Climate	Agree Strongly	8	15	1.00	0.93	0.50	1.71
	Agree slightly	43	72				
Job Satisfaction	Agree Strongly	33	45	0.16	1.41	0.88	2.24
Stress perception	Agree slightly	18	42	0.28	0.78	0.50	1.20
	Agree Strongly	27	54				
	Agree slightly	24	32				
Perception of Unit Management	Agree Strongly	10	28	0.16	0.65	0.36	1.17
	Agree slightly	40	59				
Perception of Hospital	Agree Strongly	4	10	0.57	0.74	0.32	1.76
Management	Agree slightly	47	76				
Working Condition	Agree Strongly	10	14	0.64	1.16	0.68	1.97
	Agree slightly	41	73				
Worker perception	Stronglyagree	21	36	1.00	1.00	0.64	1.57
(14)	Agree Slightly	28	48				
Collaboration between members	Agree Strongly	32	48	0.47	1.20	0.76	1.89
of the care team	Agree Slightly	19	38				

due to the low support and the need to take care of the family, besides working outside. While the male gender has better support factors and therefore less stress.The overall average of the domains associated with the gender were not strengthened, in this findings of this research. In the individual analysis by domain, it is noticed that the average for perception of stress is higher in men and tending to be positive for women, contrary to the findings of the literature. Perhaps because the male sex is reduced in relation to the female, which would increase the pressure at work. We can clarify these findings by stress / support theory, which postulates that mental health and psychosocial risk factors are determined by both supports and stressors in the personal, social and work spheres, and that support factors can undo the effects of stress (29). The male gender showed higher averages for all domains and items without domains, except for safety climate, with a trend of positive averages for the domain teamwork climate and work satisfaction. The greater amount of professional or personal experience reduces stressors, possibly due to the maturity and experience that generate a greater awareness of their professional actions and the coping mechanismsof stress on the job. Nevertheless, the predominant effect of time is still wear to the profession, at the risk of getting sick and losing control of stress (30). In this study, the overall average of the safety culture perception associated with the work time was not positive for any of the groups with more or less experience. While, in the individual analysis observed strengthening in the job satisfaction domain for the group under five (5) years and in the stress perception domain for the group greater or equal to five (5) years of experience. This was contrary to the literature, perhaps due to the fact that professional wear and tear, demotivation in the work environment and lack of support are favouring stress.

Conclusion

The safety culture approach in the health area and especially in the ICU represents a valuable tool to identify the attitudes and behaviours of health professionals in order to guarantee patient safety.There was predominance of the female gender, in this research, with emphasis on nursing since it represents a greater number of individuals. It is understandable that the female sex predominates in nursing because it represents a profession of caregivers, being traditionally composed of women since antiquity. The professionals presents safety attitude not strengthened both in males as in females. Regarding the individualized analysis of the domains, a positive teamwork climate was observed in men, demonstrating the quality of collaboration and communication between caregivers aimed at teamwork, mutual respect among professionals, control of failures and openness in communication with important information exchanges. The time of experience did not present statistical difference in relation to the greater or lesser time of profession, probably due to the complexity of the sector predisposing to the employees a limited tolerance for performance in the sector. This explains the results of a high perception of job satisfaction by young employees and the high stress perception in those with more time of profession.In short, this work presents a safety culture with little influence of gender and time of experience on the professionals safety attitude, being a specific characteristic of this ICU due to the cultural particularities of the professionals.

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