

Patient Safety Environment: Perception of Health Care Professionals

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Abstract

The patient safety environment has a major impact on the overall safety of health care. This study was carried out in order to learn more about the perception of health care professionals, with regard to their patient safety environment in hospital. The descriptive study, using a quantitative approach, was carried out between January and March 2015. Data was collected through the questionnaire Safety Attitudes Questionnaire - Short Form 2006, using a sample group of 623 professionals. The results obtained testify in favour of a positive safety environment. The categories of Perception of management and Working conditions presented a number of less positive responses, indicating that these are potential improvement areas for the development of the security environment in the organization. This study serves as a reference for the formulation of policies with a view towards optimizing patient safety, in addition to serving as a frame of reference for future benchmarking.

Keywords: Patient safety; safety environment; safety culture; safety attitudes questionnaire.

Introduction

Patient safety has been considered the key component of quality of care, and has grown in relevance in recent year. The implementation of management policies aimed at their improvement was an international priority in order to promote healthy gains and increase user satisfaction citizens and professionals health. Assessment of the safety environment is essential in identifying areas for improvement and introducing professional behaviour changes towards a gradual improvement aimed at optimizing the safety of the patient³. In this context, we recognize the need for further research in this area, enabling us to gauge the attitudes of professionals with regard to safety and help plan for the improvement of the internal quality of health institutions, assess the impact and effectiveness of the measures implemented, and perform internal and external benchmarking.

Theoretical Framework

A safety environment is considered to be a group of categories that have been developed within the scope of organizational psychology. It is one of the most-studied topics in the area of organizational and multi-causal work accidents. This concept stems from the work of Zohar in 1980, which considers the safety environment to be a particular type of organizational environment that reflects the perceptions of workers on shared safety issues in their occupational environment. Since then and to date, many authors have developed other definitions, with the definition developed by Sexton *et al.* being considered for the scope of this study,⁷ in which the environment is a measurable component of the safety culture that can be evaluated by means of the perceptions of professionals.

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In this context, the safety environment is related to the output of the safety culture, that is, the way that people gauge the importance given to safety in the organization, policies, practices and shared procedures which influence the way people behave how they think and how they act with regard to safety.

Methodology

Study design and goal

The descriptive quantitative study, transversal in nature, with the purpose of learning more about the perceptions of health professionals with regard to their perception of the patient safety environment.

Sample selection criteria

For the scope of this investigation, the following selection criteria were used: carry out duties in hospital; have direct contact with patients; agreement to participate in the study. Using the method of non-probabilistic sampling and for the sake of convenience, the sample consisted of 623 professionals.

Data collection instrument

Safety Attitudes Questionnaire (SAQ) is a questionnaire developed in 2006 by Bryan Sexton, Eric Thomas and Bob Helmreich at the University of Texas ⁷. This instrument evaluates the perceptions of health professionals with regard to safety and has been translated, culturally adapted, and verified for the Portuguese population in 2015 by Dora Saraiva (SAQ - Short Form 2006 PT)⁹.

The SAQ has 36 items and 6 categories which span organizational factors, working environment factors, and team factors:

Teamwork environment: Perception of the quality of the collaboration between the team of professionals (Items 1-6);

Safety Environment: perception of a strong and proactive organizational commitment to safety (Items 7 – 13);

Job satisfaction: pleasant feeling or emotionally positive state resulting from the perception of a work experience (Items 15-19);

Recognition of stress: Recognition of how performance is influenced by stress factors (Items 20-23); Perception management: approval of management's actions regarding safety issues (Items 24-29), with each of these items being measured on two levels (perception of service management and perception of hospital management);

Work conditions: perception of the quality of environmental and logistical support in the workplace (equipment and professional) (Items 30-32).

The answers to each of the questions follow a five-point Likert scale: strongly disagree, disagree in part, indifferent, partially agree and strongly agree. The final score of the survey ranges from 0 to 100, where zero is the worst possible perception of the safety environment and 100 is the best possible perception of the safety environment.

Formal, ethical, and statistical procedures

Prior to the start of the study, requests for authorization were submitted to the Hospital Board of Directors, respective heads of service of clinical and surgical units and the Ethics Committee, for the performance of the survey in question.

All recommended ethical principles were respected, and all individuals who agreed to participate in the study did so intentionally, anonymously, voluntarily and in an informed manner. It was undertaken to guarantee the confidentiality of data and the absence of any costs or losses to participants. The data was processed and analysed statistically using the computer program titled *Statistical Package for the Social Sciences (SPSS) version 22 Windows*.

Results and Discussion

Makeup of the Sample

The sample of 623 health professionals is mostly made up of females, totalling 442 (70.9%) professionals vs. 181 (29.1%) male health care professionals. Taking into account the distribution by services, a general breakdown was identified involving the areas of activity, with a majority in General Emergency Services (6.6%), Medicine II (6.3%) and Medical Specialties (5.3%). Regarding the function performed, it was found that the sample was made up of all professional groups with direct patient contact, with the majority being nurses, (47.0%), followed by operational assistants (22.3%), technical administrative assistants, (10.1%), diagnostic and therapeutic technicians (9.8%) and physicians (5.3%). Similar results have also been seen in other countries^{4, 10-13}. These results may be seen as reflecting an increased interest in creating a positive work and safe work environment by the nurses. With regard to the time of service of professionals, according to the pre-defined questionnaire categories, it was found that most professionals have been active in their department for between 11 and 20 years (38.2) and between 5 and 10 years (22.5%). It is notable that 81.1% of the professionals have more than 5 years of work experience, and only 3.9% have been performing their duties for less than 6 months.

Descriptive analysis of the SAQ - *Short Form 2006 PT*

The descriptive analysis of the SAQ - *Short Form 2006 PT* was performed based on calculating the responses of professionals to the questionnaire items and by averaging the responses to the items after the inversion of reverse items. It was found that most of the answers tended towards the positive side of the questionnaire, which reflects a positive attitude to patient safety. The items that stood out as being positive were: item 5 ("It is easy for professionals working in this department to ask questions when they do not understand something"), item 15 ("I enjoy my work"), item 18 ("I am proud to work in this department") and item 20 ("When my workload becomes excessive, my performance is impaired"). The opposite was observed in reverse items (items 2, 11 and 36) and in the items for the category of *Perception of management* (items 24 a 29), which presented with a significant percentage of responses consisting of "strongly disagree" or "somewhat disagree". In items relating to the *Teamwork environment*, it is clear that 84.2% of the professionals find that it is easy to ask questions when they do not understand something (item 5), and 82.6% reported to have the support they need from other professionals in providing care to the patient (item 4). These data testify in favour of a favourable teamwork environment.

Within the scope of the *Safety environment*, the large majority (88.5%) have knowledge of adequate means of directing questions related to patient safety (item 9), and 74.3% state that errors of health professionals are dealt with in an adequate manner (item 8). However, despite the fact that 64.7% of respondents believe that the culture in the department provides an opportunity for learning from the errors of others (item 13), 46.4% report that it is difficult to discuss errors (item 11). This dissonance suggests that there are important elements supporting safe environment that are failing, in particular with regard to reporting and the reporting of adverse events. This data shows that there are still significant shortcomings in the patient safety environment, preventing the matter from being discussed in a positive and non-derogatory way, through a joint action of all professionals, aimed at improving health care and reducing risks to the patient. With regard to *Job satisfaction*, it is important to emphasize that the majority of study participants, 93.3% stated that they liked their jobs (item 15); 83.7 % are proud to work in the department where they carry out their duties (item 18) and 81.3% agree that the department where they work is a good place to work (item 17). This reflects the confidence that professionals have in their own workplace, considered to be a mirror of their attitudes.

In addition, with regard to this category, 61.9% of the professionals believe that morale in the department is high (item 19), which reflects a favourable emotional attitude for the individual with regard to expectations any loyalty to the group. With regard to *Recognition of stress*, 81.8% state that when their workload is excessively high, their performance then suffers (item 20) and 78.6% believe that there is a higher probability of committing errors in tense or hostile situations (item 22). However, 18.6% disagree with the statement "Fatigue affects my performance in emergency situations" (item 23). The same was true in other studies where the fatigue of professionals is not decisive in emergency situations.

With regard to *Perception of management*, the majority of professionals (53.2%) agreed that the department management did a good job (item 26a), while 45.4% of the professionals disagreed or indicated indifference. With regard to the hospital administration, 42.8% believed that they do a good job (item 26b), while 55.3% disagreed or indicated indifference. With regard to item 24a "The administration supports my daily efforts", 27.7% disagreed and 23.3% preferred to remain neutral. The same question, with regard to the hospital, (item 24b) obtained 36.0% of responses showing disagreement and 31.6% indicating indifference.

Also within the scope of perception of management, (53.5%) stated that the number of health care professionals is not sufficient to handle the number of patients they receive (item 29). These results are in line with results determined in other countries¹⁷ and are directly related with item 20 of the previous category.

Several factors of the working situation, such as excessive workload due to insufficient staff, may contribute to the fatigue of the professionals who will in turn have repercussions on the expected reliability and consequently the safety of the patient. In fact, there is growing evidence that adverse events are correlated with inadequate levels of professionals, which should be considered a potential factor to optimize.

Finally, a significant percentage of health care professionals (44.4%) agree that there are common miscommunications that can lead to delays in care (item 36). Communication is essential for work efficiency and for achieving high quality of performance and work safety. However, when there are a number of failures, patient safety is subsequently affected, and this may jeopardize diagnoses and patient safety, and lead to a break in the continuity of care, incorrect, inadequate, or ineffective treatments or procedures, with potentially negative effects on the patient.

Thus, it is imperative to make efforts in this area by creating, in the members of the organization, feelings of loyalty and a means of establishing two-way communication processes that stimulate and optimize a environment of trust, leading the to provide higher quality service. With regard to determining the perception of professionals with regard to the safety environment, scores were determined for the SAQ and respective categories. Each item reaching 5 points on the Likert scale was converted, transforming the scores into continuous variables. The calculation of each category was made based on the formula $(m - 1) \times 25$, where m is the average of the category items in question, with variation in the range [0.100]. Values greater than 75 indicate a strong agreement of professionals regarding patient safety issues, translating into a positive environment.

The mean and median of the SAQ total were 67.03 and 68.13, respectively, which indicates a positive perception of the safety environment (table 1). Although short of the desirable 75.00 (indicative of a strong safety environment), the study reflects positive attitudes towards patient safety that are well above the international standard (60.00) and higher than other studies performed using the SAQ^{11, 17, 20, 21}.

Table 1: Descriptive Analysis of the SAQ - Short Form 2006 PT and categories and comparison with International benchmarks

SAQ total and Categories	Avg. Bench-mark*	Avg,	Deviation from Standard	Median	Minimum	Maximum
SAQ total	60.00	67.03	14.20	68.13	16.25	97.50
Teamwork environment	68.50	72.07	17.72	75.00	16.67	100.00
Safety environment	65.90	70.44	17.01	71.43	0.00	100.00
Work satisfaction	63.60	77.08	20.38	80.00	5.00	100.00
Recognition of stress	67.80	75.69	23.28	81.25	0.00	100.00
Perception of management	46.40	54.55	21.19	54.55	0.00	100.00
Working conditions	55.90	60.06	26.21	64.58	0.00	100.00

*Sexton *et al.*⁷

By category, the average varies between 54.55 (*Perception of management* category) and 77.08 (*Job satisfaction*) and the median between 54.55 and 81.25 (*Perception of management* and *recognition of stress* categories, respectively). It should be noted that all that all categories obtained significantly higher values than the international reference figures, however, the category of *Perception management* showed the least positive attitudes as is the case in most studies using the SAQ^{7,10,17,20,21}.

The results for the *Teamwork environment* category suggest that professionals of this study have significantly more positive attitudes than the international reference (72.07 *versus* 68.50), with the third category achieving the highest score. Teams are increasingly a feature of organizational life, due to the fact that most of the work performed in health care is carried out by interdisciplinary teams. The teamwork environment has long been recognized as an important factor for patient safety, and their perception is related to quality of care. When teamwork is rare, patients are more likely to experience death or major complications major.

Thus, it is unquestionable that promoting teamwork is crucial to patient safety. Therefore, despite the positive results achieved in this study, it is considered essential to continue to mobilize efforts to develop human, technical and financial resources in order to build and strengthen the capacity of training and research in this area, in order to optimize results. With regard to the category *Safety environment*, the results indicate a more positive attitude toward organizational commitment to safety (70.44), when compared with international benchmarks (65.90).

The safety environment is directly related to the commitment of leading health facilities to patient safety, and with how safety issues are managed. Positive changes in the safety environment correlate with safe behaviour and organizational loyalty and improvement in morbidity and mortality of patients. Therefore, a progressive optimization of attitudes in this area is suggested, which must inevitably include proactive intervention by management in an effort to improve patient safety. *Job satisfaction* was the category which received the highest score for the study (77.08), revealing the perception of a positive environment with regard to the morale of professionals, pride in the organization, and overall job satisfaction. These factors are crucial to the provision of safe care and quality due to the fact that professionals tend to provide safe care and establish safe routines when they are satisfied with their work, i.e. when the professional feels good and conveys confidence and credibility to patient.

Since this data indicate that there is a high potential for professional cooperation in the care environment, there is the belief that job satisfaction should be explored and utilized in risk management processes and as a means of continuous quality improvement. Comparatively, it has also been found favourable attitudes in relation to *Recognition of stress*. An average of 75.69 for this category suggests professionals are aware that factors such as fatigue, excessive workload and strained/hostile situations are conditions that foster the occurrence of errors. Attitudes related to this category are indicative of the degree in which people are placed in a variety of error-inducing conditions.

An environment where professionals are vulnerable to stress factors, such as: miscommunication, lack of support from managers, uncertainty in the goals of work, low interaction between professionals, lack of clarity about the responsibilities and physical tiredness, provides more opportunities for errors and decreases quality of care with regard to the process of safe care for the patient. One example of this is the study Taylor *et al.* where the increased recognition of stress was associated with an increase of 1.5 to 3 times the probability of accidents such as patient falls, medication errors, and pressure ulcers. Accordingly, the recognition of stress among caregivers is of great importance and relevance to patient safety, and as such, organizations should frame this issue as being among the priorities of management, to promote the provision of care that is even safer than before. The category *Perception of management* presented with the lowest score for this study (54.55), however, it was still higher than the average benchmark (46.40). This category presents with a range of less positive responses, indicating that this as a potential area for improvement. The category of perception of management by the health care professional is an important factor for patient safety assurance, since this area reflects the agreement of the professional and the hospital and department administration's actions as relate to patient safety, showing evidence, in this case, of less positive attitudes. These results may indicate gap between the professionals who provide direct care to the patients and the hierarchical superior's administration with regard to dialogue on issues of safety.

In addition to the above, the results achieved in this category may reflect the current socio-economic situation of the country, characterized by cost containment in health care and the inherent political measures imposed upon organizations. In fact, these measures have negatively influenced the motivation of health care workers, as well as the unequivocal perception they have of the performance of the administration of either the hospital or department where they work. Creating an atmosphere in the workplace that is conducive to open dialogue, high levels of management commitment to safety, a strong spirit of cohesion between various departments, involving all members, as well as the recognition of the work performed by professionals at the institution, are all indispensable factors for the creation of a more favourable safety environment, where management aims to guarantee safe care for both the professional who is providing it, as well as the patient who is receiving it. The category *Work conditions* indicate the perception of professionals regarding the quality of environmental and logistical support in the workplace. The average obtained of 60.06, while greater than the benchmark used for reference (55.90), indicates that the professionals participating in the study recognize the need for improvement in this area, with a view towards a safer and more favourable environment.

Environments with unhealthy working conditions tend to affect the performance of duties by health care professionals, leading to a variety of risks, most notably with regard to the patient. On the other hand, favourable environments encourage excellence in services, improved teamwork, continuity of care, retention of professionals and, ultimately, patient results. Thus, when excellence in care is an issue, working conditions should be one of the global health system's top priorities.

Conclusion

The results of this study are consistent with the perception of a positive safety environment by health care professionals, but the conclusions should be interpreted and used in the context where the research took place, stressing that it is only a snapshot of the safety environment. There is room, of course, for improvement in the development of a safer environment, evaluating the problems identified by unsatisfactory responses, are formulating recommendations on the best manner to optimize safety policies. The categories of *Perception of management* and *Working conditions* are potential areas for improvement with regard to optimizing the safety environment in the organization. It is possible for the study to serve as a reference in formulating patient safety policies at the hospital level where the study was carried out, as well as serving as a frame of reference for future benchmarking, and it should be considered that follow-up over time with successive studies is important, as the promotion of a safe environment is a continuous process of measurement including evaluation of identified problems, formulation of improvement actions, and evaluation of the impact of measures undertaken.

Bibliography

- Pronovost, PJ *et al.* (2009). Framework for Patient Safety Research and Improvement. *Circulation*, 119, 330-337.
- Ministério da Saúde [Department of Health] (2010). *A organização interna e a governação dos hospitais*. [Internal organization and hospital governance] Lisbon: Grupo Técnico para a Reforma da Organização Interna dos Hospitais [Techniques for Internal Reform in Hospitals].
- Sousa, AM. (2013). *Avaliação da cultura de segurança do doente num centro hospitalar da região centro* [Evaluation of the patient safety culture in a hospital complex in the centro region][dissertação de Mestrado] [Masters dissertation]. Portugal: Faculdade de Economia da Universidade de Coimbra.
- Bondevik, GT *et al.* (2014). The safety attitudes questionnaire – ambulatory version: psychometric properties of the Norwegian translated version for the primary care setting. *BMC Health Services Research*, 4 (139), 1-10.
- Silva, S, Lima, ML & Baptista, C. (2004). OSCI: An Organizational and Safety Environment Inventory. *Safety Science*, 42, 205-220.
- Zohar, D. (1980). Safety environment in industrial organizations: theoretical and applied implications. *Journal of Applied Psychology*, 65 (1), 96-102.
- Sexton, JB *et al.* (2006). The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*, 6 (44), 1-10.
- Alves, MM. (2011). *O clima de segurança na política e estratégia de saúde e segurança no trabalho* [Safety environment in working health and safety strategies and policies][dissertação de Mestrado] [Masters Dissertation]. Portugal: Instituto Politécnico de Setúbal.
- Saraiva, D. (2015). Validation of the Safety Attitudes Questionnaire - Short Form 2006 to Portugal. *International Journal of Nursing*, 2 (1), 103-112.
- Deilkås, ET & Hofoss, D. (2008). Psychometric properties of the Norwegian version of the Safety Attitudes Questionnaire (SAQ), Generic version (Short Form 2006). *BMC Health Services Research*, 8 (191), 1-10.
- Lee, W *et al.* (2010). Hospital Safety Culture in Taiwan: A nationwide survey using Chinese version of Safety Attitude Questionnaire. *BMC Health Services Research*, 10 (234), 1-8.
- Devriendt, E *et al.* (2012). Content validity and internal consistency of the Dutch translation of the Safety Attitudes Questionnaire: an observational study. *International Journal of Nursing Studies*, 49 (3), 327–337.
- Zimmermann, N *et al.* (2013). Assessing the safety attitudes questionnaire (SAQ), German language version in Swiss university hospitals - a validation study. *BMC Health Services Research*, 13 (347), 1-11.
- Hoch, AP *et al.* (2010). *Cultura da segurança da equipe de enfermagem em um centro obstétrico* [Nursing teamwork safety culture in a delivery room][Graduação em Enfermagem] [Nursing Graduation]. Brazil: Universidade Federal de Santa Catarina.
- Rigobello, MC *et al.* (2012). Clima de segurança do paciente: percepção dos profissionais de enfermagem. [Patient safety environment: perception of nursing professionals] *Acta Paulista de Enfermagem* [Paulista Nursing Society], 25 (5), 728-735.
- Bognár, A *et al.* (2008). Errors and the burden of errors: attitudes, perceptions, and the culture of safety in pediatric cardiac surgical teams. *The Annals of Thoracic Surgery*, 85, 1374–1381.
- Carvalho, R. (2011). Adaptação transcultural do Safety Attitudes Questionnaire para o Brasil- questionário de atitudes de segurança [Transcultural adoption of SAQ for Brazil – safety attitude questionnaire] [Tese de Doutorado] [Doctorate Thesis]. Brazil: Universidade de São Paulo.
- Sousa, P *et al.* (2010). Investigação e inovação em segurança do doente. [Investigation and innovation in patient safety] *Revista Portuguesa de Saúde Pública* [Portuguese Public Health Gazette], 10, 89-95.
- Santos, G *et al.* (2010). Comunicação em saúde e a segurança do doente: problemas e desafios [Communication in health and patient safety: problems and challenges]. *Revista Portuguesa de Saúde Pública* [Portuguese Public Health Gazette], 10, 17-26.
- Relihan, E *et al.* (2009). Measuring and benchmarking safety culture: Application of the Safety Attitudes Questionnaire to an acute medical admissions unit". *Irish Journal of Medical Science*, 178 (4), 433-439.

- Raftopoulos, V *et al.* (2011). Safety culture in the maternity units: a census survey using the Safety Attitudes Questionnaire. *BMC Health Services Research*, 11 (238), 1-10.
- Haynes, AB *et al.* (2011). Changes in safety attitude and relationship to decreased postoperative morbidity and mortality following implementation of a checklist-based surgical safety intervention. *BMJ Quality and Safety*, 20, 102-107.
- Taylor, JA *et al.* (2012). Do nurse and patient injuries share common antecedents? An analysis of associations with safety environment and working conditions. *BMJ Quality and Safety*, 21 (2), 101-111.