


## RESEARCH PAPER (ORIGINAL) 8

# Translation and adaptation of the Ambulatory Surgery Center Survey on Patient Safety Culture into the Portuguese context


*Tradução e adaptação do Ambulatory Surgery Center Survey on Patient Safety Culture para a cultura portuguesa*

*Traducción y adaptación de la Ambulatory Surgery Center Survey on Patient Safety*

Joana Raquel Luís Pinto<sup>1</sup>

 <https://orcid.org/0000-0003-1095-0088>

Luís Leitão Sarnadas<sup>2</sup>

 <https://orcid.org/0000-0002-7022-7062>

<sup>1</sup>Hospital da Luz de Coimbra, Coimbra, Portugal

<sup>2</sup>Unidade de Investigação em Ciências da Saúde: Enfermagem. Escola Superior de Enfermagem de Coimbra, Coimbra, Portugal

## Abstract

**Background:** As the number of ambulatory surgeries performed in Portugal increases, it becomes essential to evaluate the patient safety culture within this context. The adaptation and validation of the Ambulatory Surgery Center Survey on Patient Safety Culture is a study that still has not been carried out for the Portuguese context. **Objectives:** To translate, adapt, and validate the Ambulatory Surgery Center Survey on Patient Safety Culture into European Portuguese, and to evaluate its psychometric properties. **Methodology:** The translation and adaptation were developed in 6 stages and followed international guidelines. The instrument was applied to a randomized, non-probabilistic sample of 221 participants in a private ambulatory surgery unit in central Portugal. The analysis of the internal consistency using Cronbach's alpha and exploratory, confirmatory factor analysis were performed. **Results:** The internal consistency obtained a value of 0.934. The original factor solution original of the questionnaire was used.

**Conclusion:** The translated version presented a good quality in the psychometric evaluation and can be considered a valid, reliable, and useful instrument for the evaluation of the patient safety culture in ambulatory surgery units in Portugal.

**Keywords:** patient safety; ambulatory care; validation studies

## Resumo

**Enquadramento:** Com o número crescente de cirurgias de ambulatório realizadas em Portugal, torna-se essencial avaliar a cultura de segurança do doente neste contexto. A adaptação e validação do questionário *Ambulatory Surgery Center Survey on Patient Safety Culture* é um estudo que ainda não foi realizado no contexto português. **Objetivos:** Traduzir, adaptar e validar o questionário *Ambulatory Surgery Center Survey on Patient Safety Culture* para português, avaliando as suas propriedades psicométricas.

**Metodologia:** A tradução e adaptação desenvolveu-se em 6 etapas, seguindo diretrizes internacionais. O instrumento foi aplicado a uma amostra não probabilística acidental de 221 participantes, numa unidade de cirurgia de ambulatório privada da região centro de Portugal. Realizou-se a análise da consistência interna através do alfa de Cronbach e análise fatorial exploratória e confirmatória.

**Resultados:** A consistência interna foi de 0,934. Optou-se por usar a solução fatorial original do questionário. **Conclusão:** A versão traduzida apresentou boa qualidade na avaliação psicométrica, podendo ser considerado um instrumento válido, fiável e útil para a avaliação da cultura de segurança do doente em cirurgia de ambulatório em Portugal.

**Palavras-chave:** segurança do paciente; assistência ambulatorial; estudos de validação

## Resumen

**Marco contextual:** Con el creciente número de intervenciones quirúrgicas ambulatorias realizadas en Portugal, se hace esencial evaluar la cultura de seguridad del paciente en este contexto. La adaptación y validación del cuestionario *Ambulatory Surgery Center Survey on Patient Safety Culture* es un estudio que aún no se ha realizado en el contexto portugués. **Objetivos:** Traducir, adaptar y validar el cuestionario *Ambulatory Surgery Center Survey on Patient Safety Culture* para portugués y evaluar sus propiedades psicométricas.

**Metodología:** La traducción y adaptación se desarrolló en 6 etapas, siguiendo las directrices internacionales. El instrumento se aplicó a una muestra no probabilística accidental de 221 participantes en una unidad de cirugía ambulatoria privada en el centro de Portugal. Se realizó el análisis de la consistencia interna a través del alfa de Cronbach y el análisis factorial exploratorio y confirmatorio.

**Resultados:** La consistencia interna fue de 0,934. Se optó por utilizar la solución factorial original del cuestionario.

**Conclusión:** La versión traducida presentó buena calidad en la evaluación psicométrica y puede considerarse un instrumento válido, fiable y útil para la evaluación de la cultura de seguridad del paciente en la intervención quirúrgica ambulatoria en Portugal.

**Palabras clave:** seguridad del paciente; atención ambulatoria; estudios de validación

## Correspondence author:

Joana Raquel Luís Pinto

Email: [joanaraq@esenfc.pt](mailto:joanaraq@esenfc.pt)

Received: 08.09.19

Accepted: 02.01.20

**How to cite this article:** Pinto, J. R., & Sarnadas, L. L. (2020). Translation and adaptation of the Ambulatory Surgery Center Survey on Patient Safety Culture into the Portuguese context. *Revista de Enfermagem Referência*, 5(1), e19062. doi: 10.12707/RIV19062.



Escola Superior de  
Enfermagem de Coimbra

FCT  
Fundação  
para a Ciência  
e a Tecnologia



## Introduction

Patient safety (PS) is an important health care quality indicator, and safety culture promotion has become a starting point to obtain and improve it. Ambulatory surgery (AS) is the surgical system of the future, and increasingly more elective surgeries are performed in this modality. Thus, patient safety must be ensured in this surgical modality and assessed using appropriate tools. It is essential to identify practices that lead to errors and adverse events, for a preventive practice and safety promotion, comprehending the entire multidisciplinary team involved in providing direct care to patients submitted to surgery. For health care delivery based on the patient safety culture (PSC), the Agency for Healthcare Research and Quality (AHRQ) developed in 2014 a questionnaire entitled Ambulatory Surgery Center Survey on Patient Safety Culture (Smith, Sorra, Franklin, Rockville, & Behm, 2015). This free and self-report questionnaire was designed to be specifically applied to the whole team that works in AS settings and aims to evaluate various PSC dimensions, such as the communication about patient information, communication openness, staffing, work pressure and pace, teamwork, staff training relating to the knowledge of tasks to be performed, organizational learning with a view to continuous improvement, response to mistakes, and management support for patient safety, within the context of OPS.

Until now, there was no instrument available in Portugal to assess the PSC in OPS. Therefore, the main objective of this study is to adapt and validate linguistically, culturally, and conceptually the questionnaire developed by the AHRQ - Ambulatory Surgery Center Survey on Patient Safety Culture - into Portuguese, including its translation, adaptation, and evaluation of the psychometric properties in terms of validity and reliability in clinical practice.

The authors strongly believe that the availability of this AHRQ questionnaire, which evaluates the PSC in OPS in the European Portuguese context, will contribute to the improvement of perioperative health care provided in this modality in Portugal.

## Background

OPS can be defined as an organizational patient-centered model aiming at the improvement of quality of care provided to patients submitted to surgery through a higher personalization and humanization of care. This concept was born nearly four decades ago and had since then resulted in an exponential success in developed countries (Comissão Nacional para o Desenvolvimento da Cirurgia de Ambulatório [CNADCA], 2008; Davidson, 2014).

According to the International Association for Ambulatory Surgery, cited by the CNADCA (2008), OPS consists of performing a scheduled surgical procedure, which usually occurs in an inpatient service and whose

discharge occurs a few hours after the procedure. If, in the immediate postoperative period, the patient needs to stay the first night at the hospital, it shall be designated ambulatory surgery with overnight stay, and discharge must occur up to 24 hours after surgery.

The definition of OPS can be more explicit and, according to the General Directorate of Health (DGS) and Planning Services Board (2001, p. 7):

Ambulatory surgery is the scheduled surgical procedure, performed under general loco-regional or local anesthesia, which, although usually performed in inpatient services, can occur in specific facilities, safely and in accordance with the current *leges artis*, including admission and discharge on the same day.

OPS is innovative comparing to the inpatient elective surgery and is supported by an organizational model centered on the person submitted to surgery. The entire surgery is carried out using unconventional circuits, occurring more gains in efficiency and quality and more positive results in the field of humanization of care and satisfaction of the person submitted to surgery, family, hospital institution, and society (CNADCA, 2008; Associação dos Enfermeiros de Sala de Operações Portugueses [AESOP], 2012).

In 2006, little more than a quarter of the total scheduled surgeries were performed on an ambulatory basis in Portugal. The percentage of surgeries performed in this surgical modality has doubled in a decade. At the beginning of 2017, the Health System Central Administration (ACSS) declared that, between January and November 2016, more than 60% of surgeries scheduled in the National Health Service (SNS) were performed in ambulatory mode. The objective of 60% of OPS in the total number of scheduled surgeries was defined in the state budget of 2016 (ACSS, 2017).

Because of the recent OPS development associated with governmental and institutional incentives created, Portugal will eventually develop an OPS practice similar to that of other countries where it is more evolved, enjoying all its clinical, organizational, social, and economic advantages.

The safety culture of a health organization can be broadly defined as the product of the individual's and the group's values, attitudes, perceptions, skills, and behaviors that determine their commitment to organizational prosperity and their safe management. Communication based on mutual trust, shared perceptions of the importance of safety, and confidence in the effectiveness of preventive measures are characteristics of organizations with a positive safety culture (Smith et al., 2015). This concept encompasses all the organizational structure, from administrative leadership to caregivers. It also includes non-technical skills such as teamwork, communication, and reporting of adverse events. Flaws in these aspects can harm patients as much as technical errors (Attree & Newhold, 2009; Fan et al., 2016).

The safety promotion measures currently adopted are based on the risk management policies of high-reliability organizations (HRO). These organizations with long



records without accidents carry out their activity in conditions in which they would be expected due to the complexity and risk in which it is developed (Fragata, 2011). HRO are able to reinvent themselves, to learn and deal with the unexpected. This cognitive component is related to the ability to be alert to the possible occurrence of adverse events and, at the same time, the ability to detect, understand, and recover from them, before they lead to negative consequences. The activities carried out by HRO vary, the cognitive processes that give them meaning are stable. This stability is closely linked to an informed and, subsequently, safe culture (Reason, 2000; Fragata, 2011). A feature common to these organizations is the emphasis on communication openness, commitment to safety, and creation of an environment in which near-misses can be analyzed without a direct scapegoating (Wilson, Whyte, Gangadharan, & Kent, 2017).

It should be emphasized that the concept of safety does not directly depend on the perfect and no-error performance of a single person. On the contrary, error reduction and safety improvement require a culture in which the error is acknowledged. Likewise, the mechanisms through which errors occur are discussed openly by the entire team to reduce them (Wilson et al., 2017). Nowadays, PSC promotion is essential to obtain and improve PS and should be a priority to health care providers, as PS is an important indicator of quality of health care (Fan et al., 2016; Zwinjenberg, Hendriks, Hoogervorst-Schilp, & Wagner, 2016).

The purpose of assessing the PSC is to enable organizations to understand the characteristics of their safety culture and provide insights to transform it.

In a nutshell, achieving a satisfactory PSC requires effective leadership and the employees' understanding and sharing of the organization's values, beliefs, and norms about what is important and the expected attitudes and behaviors (Smith et al., 2015). Therefore, the AHRQ developed in 2014 the Ambulatory Surgery Center Survey on Patient Safety Culture. This questionnaire was designed specifically for OPS settings and aims to act as a tool for these units to assess the importance that their culture gives to PS, requesting the opinion of the entire multidisciplinary team on PSC in their workplace (Smith et al., 2015).

This questionnaire is widely applicable and may be used to educate the team on PS, assess the current status of PSC, identify strengths and areas in need of improvement in PSC, analyze trends in PSC change over time, evaluate the cultural impact of PS-related initiatives and interventions, and make comparisons (benchmarking) within the organizations and between organizations.

## Research Question

Will the AHRQ's Ambulatory Surgery Center Survey on Patient Safety Culture be linguistically, culturally, and conceptually valid for the Portuguese population?

## Methodology

The study consisted of the translation, cultural and linguistic adaptation of the AHRQ's questionnaire into European Portuguese for its subsequent validation and evaluation of its psychometric properties regarding the validity and reliability in clinical practice. The translation and adaptation followed the international guidelines suggested by Sousa and Rojjanasrirat (2011) and were carried out in the following stages: translation of the questionnaire to Portuguese; elaboration of a synthesis version; back-translation and elaboration of a preliminary version in Portuguese; proposal from the final version by panel of experts; pilot test; and psychometric evaluation of the preliminary version.

### Step 1 - Initial translation to English

The translation of the Ambulatory Surgery Center Survey on Patient Safety Culture from English into Portuguese was performed by two independent, bilingual translators, whose native language is Portuguese. This approach generated two versions translated into Portuguese containing words and sentences that encompass the more technical medical language and the informal, spoken-like language with its cultural nuances.

### Step 2 - Synthesis Version

The two translations obtained in step 1 resulted in a preliminary first Portuguese version of the questionnaire (Version 1), which was compared with the original English version by a third bilingual translator. All ambiguities and discrepancies of words, sentences, and meanings were analyzed and discussed. The two translators who participated in step 1 needed to intervene at this stage to reach an agreement on the preliminary Portuguese version (Version 1).

### Step 3 - Back-translation

This step comprised a new translation of the preliminary Portuguese version of the instrument (Version 1) into English. This translation was carried out by two other independent translators with the same qualifications and characteristics described in step 1, and two English versions of the instrument were produced.

### Step 4 - Preliminary version in Portuguese and Panel of Experts

Initially, the two versions resulting from the back-translation into English were compared by a multidisciplinary committee with the original version of the questionnaire, as regards the format, language, and grammatical structure of sentences, similarity, meaning, and relevance. In this step, the ambiguities and discrepancies relating to meanings and colloquialisms, or idioms between the two back-translations, between each of the two back-translations and the original instrument were discussed and agreed upon by the members of the committee to obtain a pre-final version of the instrument (Version 2).

This stage of the translation process is the epicenter of the whole process because this approach established the initial conceptual, semantic, and content equivalence of Version 2.

The committee's role was to assess, revise, and consolidate the instructions, items, and format of the back-translated



questionnaire responses with conceptual, semantic, and content equivalence, as well as develop the version 2 for psychometric and pilot tests.

#### Step 5 - Pilot test

A pilot test was conducted among the study participants whose native language is Portuguese to assess all of the components of the questionnaire. Twelve participants were recruited from the population under study. Each of them was asked to evaluate the questionnaire, determining the degree of clarity of the various components. All participants who reported any unclear items were asked to suggest how to write the instructions more explicitly. It was established that all the items considered unclear by at least 20% of the sample should be re-evaluated; the minimum agreement between the evaluators of the sample was 80%.

A new panel of experts, composed of six elements, was required to improve the conceptual and content equivalence of the Version 2 items. These experts possessed advanced knowledge in the areas of the content of the questionnaire and the population at which its application is directed. An agreement index of 80% was also determined. The instrument was subsequently prepared to be completed in writing and delivered to the participants.

**Step 6 - Psychometric evaluation of the preliminary version**  
After all the steps described above, the proposed Portuguese version of the Ambulatory Surgery Center Survey on Patient Safety Culture was submitted to an assessment of the psychometric properties in the clinical context. This version was designated *Questionário para Avaliação da Cultura de Segurança do Doente em Cirurgia de Ambulatório*.

A non-probabilistic, randomized sample was used for data collection, and the inclusion criteria were the following: more than 6 months of professional activity and free consent of the professionals to participate in the study. The sample comprised 221 participants, and the data collection occurred between 29 September 2017 and 20 December 2017.

#### Ethical and legal considerations

The Ethics Committee of the Health Sciences Research Unit: Nursing (UICISA: E), of the Escola Superior de Enfermagem de Coimbra, and the Ethics Committee of the Private Health Unit under analysis issued a favorable opinion for the conduction of the study (Opinion no. P44-09/2017). The questionnaire was only applied to the professionals who agreed to participate freely, and the participants were informed that they could withdraw at any time, without any damage or injury. The study objectives were explained to all participants, and further clarifications were provided to participants who requested them. All questionnaires were delivered in open envelopes, along with the informed consent form, and collected at collection points in the institution where the study took place. The participants completed all questionnaires.

## Results

The institution where the data were collected is located in central Portugal. It is a private health institution, where AS of countless specialties are performed.

As regards the distribution of the respondents per professional group, they are most of the time nurses (45%), 27% are surgeons and assistants, 10% anesthesiologist, 9% operational assistants, and 5% administrative staff (the remaining groups - administration/management, technicians, and others - have a representation equal to or less than 2%).

Concerning the number of working hours per week of the respondents of the questionnaire in the OPS unit under analysis, 38% of them work up to 16 hours in that institution, while 14% work between 17 and 31 hours, 21% between 32 and 40 hours, and 26% work more than 40 hours per week.

The original questionnaire does not question the participant about other demographic variables, such as gender, age, academic qualifications, time of service. It was decided not to ask more demographic questions to the participants beyond those included in the questionnaire because, even if a better characterization of the sample of this study were possible, relevant comparisons could not be performed or the results and this discussion could not gain more meaning.

#### Fidelity study

The fidelity of the *Questionário para Avaliação da Cultura de Segurança do Doente em Cirurgia de Ambulatório* was determined by calculating the Cronbach's alpha.

It was found that two dimensions of the scale, Communication openness and Response to mistakes, obtained an  $\alpha$  score lower than 0.70 but higher than 0.65. The dimensions with better internal consistency were management support to patient safety ( $\alpha = 0.80$ ) and staff training - knowledge of the tasks to be performed ( $\alpha = 0.79$ ). The values obtained in this study are consistent with those of the original study, although in dimension 1, communication about patient information, the  $\alpha$  value of this study is higher ( $\alpha = 0.751$  versus  $\alpha_{\text{original}} = 0.71$ ), as well as in the dimension relating to teamwork ( $\alpha = 0.773$  versus  $\alpha_{\text{original}} = 0.74$ ). The scale presents a good internal consistency globally ( $\alpha = 0.93$ ), which is an important indicator of the accuracy and reliability of the assessment instrument used.

The factorial structure used by the authors has a good internal consistency and can be used in statistical comparisons (Table 1). Furthermore, there is no item with a low correlation with the total scale, so there is no evidence of major errors in the translation and linguistic and cultural adaptation of the questionnaire in this study. Thus, the results obtained can be confronted with those of the pilot study conducted by Sorra, Smith, and Franklin (2015).

Table 1

*Internal consistency coefficients of the 8 dimensions of the Ambulatory Surgery Center Survey on Patient Safety Culture.*

Dimensions of the PSC	$\alpha$ of this study	$\alpha$ original
1. Communication about patient information	0.751	0.71
2. Communication openness	0.658	0.69
3. Staffing, work pressure and pace	0.775	0.78
4. Teamwork	0.773	0.74
5. Staff training (knowledge of the tasks to be performed)	0.791	0.83
6. Organizational learning – continuous improvement	0.765	0.83
7. Response to mistakes	0.669	0.78
8. Management support for patient safety	0.800	0.84

### Validity study

The expert panel validated the content of the questionnaire translated into Portuguese in step 4 of the translation and adaptation process, which consists of the preparation of the preliminary version in Portuguese and panel of experts. The consensus was reached among all committee elements, providing the questionnaire with linguistic, semantic, cultural, and conceptual equivalence.

Factor analysis was used to assess construct validity. Firstly, an exploratory analysis was performed, in which the retained common factors were those presenting an eigenvalue higher than 1, consistent with the screen-plot and the retained variance percentage. This is because the use of a single criterion can lead to the retention of more or fewer factors than those relevant (Marôco, 2007). The analysis of the adequacy of the sample was carried out using the Kaiser-Meyer-Olkin test (KMO) with the classification criteria defined by Marôco (2007) and Pestana and Gageiro (2008). A KMO of 0.902 was observed, and the factorability of the correlation matrix was confirmed by Bartlett's sphericity test ( $\chi^2 = 1960.145$ ;  $p < 0.001$ ). These indicators suggest that the variables have a significant correlation and show that the sample was adequate for the implementation of the factor analysis technique.

Exploratory factor analysis by principal components was conducted with the varimax rotation method, which resulted in a solution of six factors that explain 64.79% of the variance of the OPS safety culture. However, a discrepancy occurred between the number of factors obtained in this analysis (six factors) and the number of factors of the scale (eight factors). In addition to the number of different factors, it was also found that the items were distributed differently than the validated original instrument. Subsequently, an analysis forced into an eight-factor result was performed, as recommended in the original questionnaire, to assess how to distribute items and the statistical validity of this option. It was found that the percentage of explained variance increased from 64.8% (the six-factor solution) to 70.9%, with the same results regarding the KMO criterion and Bartlett's sphericity. Moreover, the original factor solution for the questionnaire was used because it is the validated one and the internal consistency of the items per factor is acceptable.

Table 2 presents the components/dimensions of PSC which are measured in the questionnaire (factors), as well as the items that assess them. The items formulated reversely are marked with the letter.

Table 2

*Items of the questionnaire distributed by the PSC dimensions evaluated*

PSC Dimension	Response options	Items
1. Communication About Patient Information ( $\alpha$ of this study = 0,751; $\alpha$ original = 0,71)	Never; Rarely; Sometimes; Most of the time; Always; Does not apply/Don't Know	Important patient care information is clearly communicated across areas in this facility.
		Key information about patients is missing when it is needed. (R)
		We share key information about patients as soon as it becomes available
		Within this facility, we do a good job communicating information that affects patient care.

<b>2. Communication Openness</b> $(\alpha_{\text{of this study}} = 0,658; \alpha_{\text{original}} = 0,69)$	Never; Rarely; Sometimes; Most of the time; Always; Does not apply/Don't Know	We feel comfortable asking questions when something doesn't seem right. When we see someone with more authority doing something unsafe for patients, we speak up. Our ideas and suggestions are valued in this facility.
<b>3. Staffing, Work Pressure, and Pace</b> $(\alpha_{\text{of this study}} = 0,775; \alpha_{\text{original}} = 0,78)$	Never; Rarely; Sometimes; Most of the time; Always; Does not apply/Don't Know	We have enough staff to handle the workload. There is enough time between procedures to properly prepare for the next one. We feel rushed when taking care of patients. (R)
<b>4. Teamwork</b> $(\alpha_{\text{of this study}} = 0,773; \alpha_{\text{original}} = 0,74)$	Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree; Does not apply/Don't Know	When someone in this facility gets really busy, others help out. Doctors and staff clearly understand each other's roles and responsibilities. Our facility allows disrespectful behavior by those working here. (R) We work together as an effective team.
<b>5. Staff Training</b> $(\alpha_{\text{of this study}} = 0,791; \alpha_{\text{original}} = 0,83)$	Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree; Does not apply/Don't Know	Staff who are new to this facility receive adequate orientation. Staff feel pressured to do tasks they haven't been trained to do. (R) We get the on-the-job training we need in this facility. Staff get the refresher training they need.
<b>6. Organizational Learning – Continuous Improvement</b> $(\alpha_{\text{of this study}} = 0,765; \alpha_{\text{original}} = 0,83)$	Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree; Does not apply/Don't Know	This facility actively looks for ways to improve patient safety. We make improvements when someone points out patient safety problems. We are good at changing processes to make sure the same patient safety problems don't happen again..
<b>7. Response to Mistakes</b> $(\alpha_{\text{of this study}} = 0,669; \alpha_{\text{original}} = 0,78)$	Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree; Does not apply/Don't Know	Staff are treated fairly when they make mistakes. Learning, rather than blame, is emphasized when mistakes are made. Staff are told about patient safety problems that happen in this facility.
<b>8. Management Support for Patient Safety</b> $(\alpha_{\text{of this study}} = 0,800; \alpha_{\text{original}} = 0,84)$	Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree; Does not apply/Don't Know	Managers encourage everyone to suggest ways to improve patient safety. Management examines near-miss events that could have harmed patients but did not. Management provides adequate resources to improve patient safety.

It should be noted that the responses of three components of the questionnaire are not included in the statistical data treatment above. These three components are not dimensions of the PSC. However, they are areas of major

interest in the evaluation of the PSC in the organization, documentation of near-misses, global assessment of patient safety, and communication in operating rooms. Table 3 presents these areas of PSC assessment.

Table 3  
*Areas of PSC assessment*

Areas of PSC assessment	Response Options	Question
Near-Miss Documentation	Never; Rarely; Sometimes; Most of the time; Always; Does not apply/Don't Know	When something happens that could harm the patient, but does not, how often is it documented in an incident or occurrence report?
Overall Patient Safety Rating	Poor, Fair, Good, Very good, Excellent	Please give your facility an overall rating on patient safety.

<b>Communication in the Surgery/Procedure Room</b>	Yes; No	Are you typically in the surgery/procedure room during surgeries, procedures, or treatments?
(If the answer is "Yes") In the past 6 months, how often were the following actions done in your facility?		
		Just before the start of procedures, all team members stopped to discuss the overall plan of what was to be done.
	Never; Rarely; Sometimes; Most of the time; Always; Does not apply/Don't Know	Just before the start of procedures, the doctor encouraged all team members to speak up at any time if they had any concerns.
		Immediately after procedures, team members discussed any concerns for patient recovery.

## Discussion

In what concerns the evaluation of the psychometric properties of the questionnaire, the Cronbach's alpha values show that the instrument has an acceptable internal consistency. Through the evaluation of internal consistency of the Ambulatory Surgery Center Survey on Patient Safety Culture, it was found that, in the English version provided by the AHRQ and translated into European Portuguese (elaborated in this study), the Cronbach's alpha for the two versions of the questionnaire is between 0.658 and 0.84. In its original version, the minimum  $\alpha$  value of the dimensions is 0.69, and the highest is 0.84. However, in the version back-translated into English, the lowest  $\alpha$  value is 0.658, and the highest is 0.800. For the total questionnaire, the Cronbach's alpha coefficient obtained in this study was 0.934, which means a very good internal consistency of the translated instrument. The Cronbach's alpha for the original version of the questionnaire was not provided by the authors.

Based on the benchmarking analysis of the internal consistency of the eight dimensions of the questionnaire in both studies, it was noted that all dimensions present  $\alpha$  values equal to or higher than 0.65, and the higher coefficient was observed in dimension 8 – management support for patient safety ( $\alpha = 0.800$ ). In both this study and the pilot study, dimension 2 – communication openness presents the lowest  $\alpha$  values of the questionnaire, 0.658 in this study and 0.69 in the study conducted by Sorra et al. (2015).

Besides the fidelity study of the questionnaire, content and construct validity was also conducted. This study showed that the dimensions of the translated version of the questionnaire reflect the evaluative indicators of what is to be measured. In this analysis, all the nursing roles in the operating room were encompassed in the category Nurse because it is not sensible to fragment the analysis in the Portuguese context. The categories Nurse, Certified Registered Nurse Anesthesiologist, Nurse Practitioner, and Scrub Nurse are considered in the original questionnaire. The expert panel did not perform further changes to the original questionnaire, and all the issues were discussed until a consensus was reached by all elements. Moreover, it can be assumed that the evaluation of the psychometric properties of the instrument translated shows that its performance is excellent.

Therefore, the scientific evidence relating to the psycho-

metric properties of the questionnaire allows inferring that the translation and adaptation of the Ambulatory Surgery Center Survey on Patient Safety Culture (Questionário para Avaliação da Cultura de Segurança do Doente em Cirurgia de Ambulatório) is a valid tool to assess the surgical patient safety culture in ambulatory clinics in Portugal. The use of this questionnaire in Portugal will allow analyzing the PSC in institutions where OPS is performed, identify strengths and areas for improvement, raise awareness among professionals, create intervention plans, and carry out the benchmarking of intra- and inter-institutional results.

The limitations of this study were a scarcity of national and international scientific studies on this topic. This scarcity meant that it was difficult to carry out comparisons with other realities beyond the pilot study for the initial development of the questionnaire by the AHRQ. In addition, the data collection was carried out in a private health care institution, which may not represent the safety culture of OPS units belonging to the SNS. It should be also considered as a limitation of this study the non-probabilistic sampling technique, which did not allow the extrapolation of results to the population. The lack of demographic data that best characterize the sample was also a limitation. Even if these data were not majorly important for the process of translation and validation, they will certainly be useful for the future application of the questionnaire to take advantage of all its possible uses.

## Conclusion

The analysis of the PSC within the context of OPS is relevant and imperative in our reality because the success of OPS in Portugal depends very much on a qualitative improvement at the institutional level.

This study alerts to the relevance of the topic and urgency of awareness of issues related to patient safety. It also suggests the need to introduce new tools that are valid and adapted to the Portuguese context to make health practices more secure, investing in the creation of a fair, open, and resilient culture.

This study resulted in the first European Portuguese version of the Ambulatory Surgery Center Survey on Patient Safety Culture, adapted and validated for the Portuguese reality. The translated version presented a good quality in the psychometric assessment, excellent internal consistency and content and construct validity.



It can be considered a valid and reliable instrument for the assessment of the patient safety culture in OPS in Portugal. It is a self-report questionnaire that provides a comprehensive assessment, a complete and comprehensive questionnaire, applicable to all professionals who work in an OPS unit - from the executive director to the administrative employees. Its results may be used for several purposes. It allows performing the analysis of PSC in the institution, identifying strengths and areas for improvement, raising awareness among professionals, creating intervention plans, and carrying out the benchmarking of intra- and inter-institutional results.

### Author contribution

Conceptualization: Pinto, J. R., Sarnadas, L. L.

Data Curation: Pinto, J. R.

Formal analysis: Pinto, J. R.

Writing – original draft: Pinto, J. R.

Writing – review & editing: Pinto, J. R.

### References

- Administração Central do Sistema de Saúde. (2017). *Atividade cirúrgica do SNS atinge o valor mais elevado de sempre em 2016*. Retrieved from <http://www.acss.min-saude.pt/2017/08/29/atividade-cirurgica-do-sns-atinge-o-valor-mais-elevado-de-sempre-em-2016/>
- Associação dos Enfermeiros de Sala de Operações Portugueses. (2012). *Enfermagem perioperatória: Da filosofia à prática dos cuidados*. Loures, Portugal: Lusodidata.
- Attree, M., & Newbold, D. (2009). Risk, safety, and reliability: From cult to culture? *Journal of Nursing Management*, 17(2), 145-150. doi:10.1111/j.1365-2834.2009.01000.x/epdf
- Comissão Nacional para o Desenvolvimento da Cirurgia de Ambulatório. (2008). *Relatório final: Cirurgia de ambulatório: Um modelo de qualidade centrado no utente*. Retrieved from [http://www.apca.com.pt/documentos/relatorio\\_final\\_CNADCA\\_20Out08.pdf](http://www.apca.com.pt/documentos/relatorio_final_CNADCA_20Out08.pdf)
- Davidson, J. (May 2014). Why a Column on Ambulatory Best Practices? *AORN Journal*, 99(5), pp. 612-15. 10.1016/j.aorn.2014.01.018
- Davidson, J. (2014). Why a column on ambulatory best practices? *AORN Journal*, 99(5), 612-915. doi:10.1016/j.aorn.2014.01.018
- Direção-Geral da Saúde, Direção de Serviços de Planeamento. (2001). *Cirurgia de ambulatório: Recomendações para o seu desenvolvimento*. Lisboa, Portugal: Autor.
- Fan, C., Pawlik, T., Daniels, T., Vernon, N., Banks, K., Westby, P., . . . Makary, M. (2016). Association of safety culture with surgical site infection outcomes. *American College of Surgeons*, 222(2), 122-128. doi:10.1016/j.jamcollsurg.2015.11.008
- Fragata, J. (2011). *Segurança dos doentes: Uma abordagem prática*. Lisboa, Portugal: Lidel.
- Marôco, J. (2007). *Análise estatística com utilização do SPSS* (3ª ed.). Lisboa, Portugal: Edições Sílabo.
- Pestana, H., & Gageiro, J. (2008). *Análise de dados para ciências sociais: A complementaridade do SPSS* (5ª ed.). Lisboa, Portugal: Edições Sílabo.
- Reason, J. (2000). Human error: Models and management. *The BMJ*, 320, 768-770. doi:10.1136/bmj.320.7237.768
- Smith, S., Sorra, J., Franklin, M., Rockville, W., & Behm, J. (2015). *Ambulatory surgery center survey on patient safety culture: User's guide*. Retrieved from <https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/asc/userguide/ascguide.pdf>
- Sorra, J., Smith, S., & Franklin, M. (2015). *Results from the 2014 AHRQ ambulatory surgery center survey on patient safety culture pilot study*. Retrieved from [https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/asc/resources/asc\\_pilotstudy.pdf](https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/asc/resources/asc_pilotstudy.pdf)
- Sousa, V., & Rojjanasirirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, 17(2), 268-274. doi:10.1111/j.1365-2753.2010.01434.x
- Wilson, J., Whyte, R., Gangadharan, S., & Kent, M. (2017). Teamwork and communication skills in cardiothoracic surgery. *The Annals of Thoracic Surgery*, 103(4), 1049-1054. doi:10.1016/j.athoracsur.2017.01.067
- Zwinjenberg, N., Hendriks, M., Hoogervorst-Schilp, J., & Wagner, C. (2016). Healthcare professionals' views on feedback of a patient safety culture assessment. *BMC Health Services Research*, 16(199). doi:10.1186/s12913-016-1404-8