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The hospital survey on patient safety culture: Use of the questionnaire in European hospitals

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Abstract

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Background: An increasing interest in improving patient safety leads to the use of various evaluation tools. The tool chosen for this study is used in many counties including Europe. It was developed under the support of the Agency for Healthcare Research and Quality, tested in pilot studies at 21 American hospitals and has strong psychometric qualities. It can be used by all members of hospital staff including those who are not in close contact with patients.

Aim: The main goal is to assess whether the psychometric properties of The Hospital Survey on Patient Safety Culture evaluation tool have been retained in different healthcare settings.

Methodology: Searching literature for the review was performed in electronic databases PubMed, Science Direct and Bibliographica medica Čechoslovaca. The attention was paid to papers in English written in the period between 2010 and 2017. The papers had to be focused on the use of The Hospital Survey on Patient Safety Culture in EU countries.

Results: The internal consistence given by the Cronbach`s alpha coefficient reached satisfactory results in most cases. The highest values (0.66 - 0.87) are mentioned in the Swedish version. The Croatian, Slovenian and Kosovo adaptations were not satisfactory, the values of some dimensions were below 0.60. The tool was adapted in 5 cases.

Conclusion: The conclusions of the published surveys recommend adapting this tool for EU countries e.g. by using in-depth dialogues. The information can be regarded as the starting point for other more specified studies.

Keywords: patient, safety culture, standardized questionnaire, survey.

Introduction

In the course of the past twenty years, approaches towards the improvement of patient care quality and safety have been developing in accordance with the changing procedures, new technologies and the increasingly more complicated health care system (WHO, 2011, p. 8).

The safety culture is defined as follows: An integrated pattern of individual and organisational behaviour, based upon shared beliefs and values that continuously seeks to minimise patient harm, which may result from the processes of care delivery (EUNetPaS, 2010, p. 4).

The development of such a culture in the professional context represents a challenge for hospitals, to which a corresponding attention should be paid for it contributes to patient safety, supports discussions on safety problems and practical measures to improve the safety of healthcare (Hellings et al., 2007, p. 621; Sováriová Soósová et al., 2017, p. 18).

There are several standardized tools used for the assessment of safety culture in health care facilities (EUNetPaS, 2010, p. 3; Hellings et al., 2007, p. 622; Halligan, et al., 2011, p. 340). The goal of our paper is to present preserving performance of psychometric qualities of the evaluation tool called the “Hospital Survey on Patient Safety Culture” in European countries. This questionnaire was developed by the Agency for Healthcare Research and Quality (AHQR), which is a federal organization active in the whole US territory. The activities of this agency include the management and support of research that improves patient safety and the healthcare quality (AHRQ, 2015).

This tool was chosen as it had been recommended in the final report of the project called The European Network for Patient Safety as one of three validated tools used for the identification of patient safety culture along with Manchester Patient Safety Assessment Framework from the University of Manchester in the UK and Safety Attitudes Questionnaire from the University of Texas / Johns Hopkins University in the USA (EUNetPaS, 2010, p. 12).

Further reasons for our choice included a well-documented manual, databases for the survey results comparison, recommendations by other authors (Hedsköld et al., 2013, p. 10; Hammer et al., 2011, p. 2;) and, last but not least, the fact that the tool had been translated and adapted for the use in the Czech Republic, where these problems are being dealt with by the Faculty of Health and Social Studies, the University of South Bohemia in České Budějovice (Bártlová et al., 2014, p. 5).

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Methodology

Secondary data analysis was performed to meet the goal of this study. The information was searched for in PubMed, Science Direct and Bibliographica medica Čechoslovaca databases under the following criteria: publication language – English; publication genre – partial research studies, outline (overview) studies, discussion contributions; time period 2010 - 2017. The review was based on the following key words: culture, hospital, healthcare, patient, research, safety, survey. The combinations of the keywords were determined using Boolean operators "and", "or" and auxiliary features. The papers had to be focused on the healthcare safety culture survey in European countries. The attention was paid to the evaluation tool called "The Hospital Survey on Patient Safety Culture" (HSOPSC) and, furthermore, the papers had to describe one or more from the following areas: psychometric characteristics of the evaluation tool or internal consistence, reliability, validity, test retest, process of translation, the evidence value comparisons with other tools, etc.

In the above mentioned time period, 157 papers were published (119 PubMed, 33 Science Direct and 6 Bibliographia medica Čechoslovaca). Subsequently, the choice was reduced as far as the countries were concerned; this study was focused on Europe. 64 papers from 17 European countries met these criteria. These and similar studies, qualitative studies, duplicate studies and papers with other topics e.g. studies focused on staff safety evaluation or on outpatient care, studies using another evaluation tool, etc., which included 12 papers, were excluded from this study. In addition, 4 duplicate papers and papers that did not provide sufficient information on the HSOPSC evaluation tool were excluded. The strategy of searching and choice is shown in Fig. 1. ProQuest and BioMed Central were used to look up the full texts.

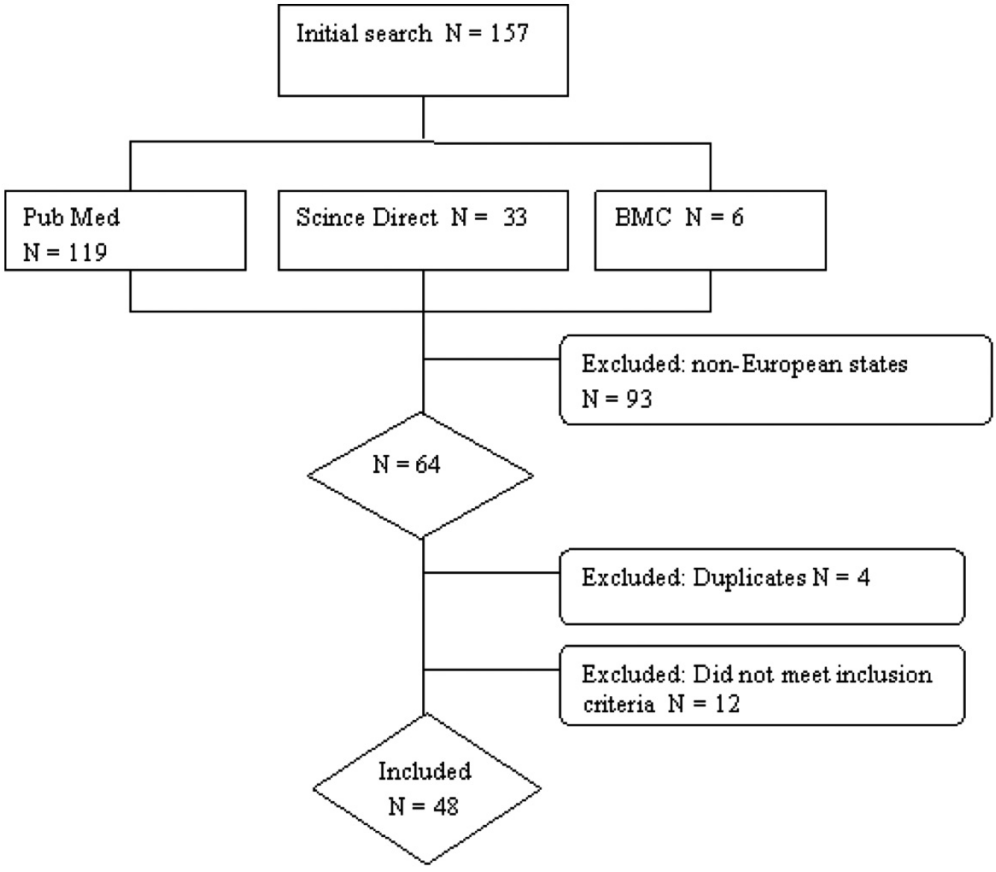

Fig. 1. Strategy of searching

Results

Development and Description of the Evaluation Tool

The standardized questionnaire for The Hospital Survey on Patient Culture (HSOPSC) was issued by the Agency for Health Research and Quality (AHRQ) in 2006 (AHRQ, 2015).

The HSOPSC questionnaire is designed for inpatient facilities, it is freely available in English and Spanish, including the methodology. The HSOPSC identifies how the staff members perceive the problems associated with patient safety, errors and adverse event reports. It was designed in a way that enables the questionnaire to be filled in by all hospital staff including those who do not have a direct contact with patients.

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The development of the HSOPSC tool was based on the literature overview, studying of both published and unpublished tools for safety culture and psychometric analyses performed in two existing studies on safety culture. The proposal was tested in 21 hospitals, the data obtained were analyzed to enable improvement and to assess its psychometric properties.

For each dimension, an acceptable reliability level of internal consistence defined as Cronbach`s alpha higher or equals 0.60 with the reliability coefficient of 0.63 to 0.84 (Sorra et al., 2004, p. 59).

The final version of "The Hospital Survey on Patient Safety Culture" includes 12 dimensions with the total number of 42 items and complementary questions for the analysis of the results as is shown in Tab. 1. (Sorra et al., 2004, p. 56).

Tab. 1. The dimensions in the Hospital Survey on Patient Safety Culture (Sorra et al., 2004, p. 3)

Dimension	No of items
Supervisor/manager expectations and actions promoting safety	4 items
Organizational learning and continuous improvement	3 items
Teamwork within units	4 items
Communication openness	3 items
Feedback and communication about error	3 items
Non-punitive response to error	3 items
Staffing	4 items
Management support for patient safety	3 items
Teamwork across units	4 items
Handoffs and transitions	4 items
Overall perceptions of patient safety	4 items
Frequency of events reported	3 items

Results of HSOPSC adaptation for European Countries

From the point of view of validity and usefulness of some evaluation tools, some authors (Hedsköld et al., 2013, p. 2; Waterson et al., 2010, p. 5) draw the attention to the existence of significant differences in healthcare settings that have to be taken into account.

They include, e.g., mainly geographic and regional specifics and differences in healthcare systems. As Beaton et al. (2000, p. 3187) remark, the evaluation tools always need to be adapted to the use in another than the original language. For the process of language translations and cultural adaptations within the questionnaire development to be used in another setting, the term of "intercultural adaptation" is used. This process should be a way that enables the original and target questionnaires to be equivalent – i.e. their psychometric properties, such as validity and reliability of the items and the level of the scale, should be maintained.

Cronbach`s alpha coefficient testifying to the internal consistence of the survey represents the key psychometric measure.

In the papers explored in this study, the highest values (0.66 – 0.87) are described in the Sweden study published by Hedsköld et al. (2013, p. 1) and in the version for management (Hammer et al., 2011, p. 1). The adaptations of the Croatian version (Brborovič et al., 2013, p. 125), Slovenian version (Robida, 2013, p. 469), Kosovo version (Brajshori et al., 2016, p. 483) French version (Occelli, 2013, p. 459) and Portuguese version (Eiras et al., 2014, p. 111) were not successful. The results of The Hospital Survey on Patient Safety Culture in Europe are described in Tab. 2.

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Tab. 2. Adaptation of the Hospital Survey on Patient Safety Culture in Europe

Country	Cronbach's alpha	Dimension number	Reference
Belgium	0.57 – 0.85 for the Dutch version 0.52 – 0.87 for the French version	12	Vlayen et al., 2012
Finland	0.52 – 0.81	12	Kuosmanen et al., 2013
France	0.46 – 0.84	10	Occelli et al., 2013
Croatia	0.35 – 0.91	12	Brborovič et al., 2013
Kosovo	0.44 – 0.78	8	Brajshori et al., 2016
Germany	0.61 – 0.87 HSOPSC_M	12	Hammer et al., 2011
Netherlands	0.58 - 0.79 for the Dutch version	11	Smits et al., 2012
Norway	0.60 – 0.85	12	Haugen et al., 2013
Portugal	0.48 – 0.91	12	Eiras et al., 2014
Scotland	0.60 – 0.84	12	Sarac et al., 2011
Slovenia	0.36 – 0.88	12	Robida, 2013
Sweden	0.60 – 0.87 0.66 – 0.87	14	Nordin et al., 2013 Hedsköld et al., 2013
Switzerland	0.64 – 0.83 for the Germany version 0.57 – 0.86 for the French version	12	Pfeiffer et al., 2010 Perneger et al., 2014
United Kingdom	0.58 – 0.83	9	Waterson et al., 2010

Legend: HSOPSC_M – form of the survey designed for hospital management

The modification of the HSOPSC tool is in the context of language translations, attempts to use terminology in the context of a given country or the addition of items that are considered important.

The Swiss group of experts found out that the French-language HSOPSC version was not made as satisfactorily as the original tool. Questions are asked about the theoretical basis of the HSOPSC model because, e.g., in comparison with the Safety Attitudes Questionnaire (SAQ), the items concerning the "recognition of stress" and "job satisfaction" are missing. As problematic, several dimensions are described, such as "staffing", "communication openness" and "feedback" and "communication about the error", etc. (Perneger et al., 2014, p. 392). The results of the Croatian HSOPSC translation show compatibility in 11 of the original 12 dimensions, which suggests that the dimensions of "staffing", "communication openness" and "continuous improvement" should be revised (Brborovič et al., 2013, p. 131).

In spite of the ambiguousness of the Portuguese, Scottish, Swiss and Slovenian HSOPSC versions, all 12 dimensions were maintained as a result of multiple comparisons (Eiras et al., 2014, p. 117; Sarac et al., 2011, p. 842; Perneger et al., 2014, p. 389; Robida, 2013, p. 469).

Based on the test results of the internal consistency of factors using Cronbach`s alpha and construct validity, some authors suggested an adaptation of the number of dimensions (Waterson et al., 2010, p. 3; Occelli, et al. 2013, p. 461; Brajshori et al., 2016, p. 483; Smits et al., 2012, p. 3393; Hedsköld et al., 2013, p. 5; Nordin et al. 2013, p. 43). The validation of HSOPSC translation included the analysis of items, the analysis of survey factors and the reliability analysis of composite scores and interrelations.

The HSOPSC validation was also performed in the U.K. Furthermore, the analysis of confirmatory factors was poor in comparison with the original American model. Thus, the optimal model was developed using exploring and confirmatory factor analyses and consists of 9 dimensions. The HSOPSC optimization resulted in the common dimension called Overall Perception of Safety and Staffing, which may be caused by the increased tendency to associate the number of staff with safety (Waterson et al., 2010, p. 4).

The French version of the HSOPSC questionnaire required some adjustments based on the French context: two dimensions were merged into one, three items were removed and one was added to the revised version. The final structure, consisting of 10 dimensions and 40 items, has shown acceptable psychometric properties (Occelli et al., p. 465).

The Kosovo model has only 8 dimensions, particularly the items concerning the intention to report adverse events correlated in a wrong way (Brajshori et al., 2016, p. 488).

The Dutch translation of the study called COMPaZ is divided into 11 dimensions and is 2 items shorter. Each dimension consists of 6 items. The psychometric dimensions of the new questionnaire version are good; the internal consistency of "staffing" was low. The validity of the COMPaZ construction was good (Smits et al., 2012, p. 3394).

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Some authors (Hedsköld et al., 2013, p. 10; Hammer et al., 2011 p. 9) have modified the items for changing or expanding the target group.

The Swedish HSOPSC version was developed for the use both at hospitals and in primary care. Two new dimensions and one scale for measuring the results were added. S-HSOPSC consists of 14 dimensions, 48 items and 3 single outputs. Based on a professional discussion, the dimensions of "Information and support to patients and family who have suffered an adverse event" and "Information and support to staff who have been involved in an adverse event" were added. The psychometric properties of the Swedish and original HSOPSC version were tested using the confirmatory factor, the internal consistency was tested using Cronbach`s alpha and other indicators. The advantage of one common tool for measuring the patient safety culture in hospitals and primary care facilities is seen in the ability of comparison across the sectors (Hedsköld et al., 2013, p. 10).

In Germany, the original HSOPSC was adapted for the use by hospital managers, e.g. doctors. The Swiss-German HSOPSC version was used as the source material. The final HSOPSC_M form of the survey designed for hospital management as a part of the adaptation, e.g., the "number of errors reported" was omitted. HSOPSC_M psychometric properties suggest that this model needs to be improved and modified (Hammer et al., 2011, p. 9).

Repeated evaluations of patient safety culture using HSOPSC were published e.g. by Hellings et al. (2010, p. 489) Hedsköld et al. (2013, p. 1), Vlayen et al. (2015, p. 124), Burström et al. (2014, p. 1) Occelli, et al. (2013, p. 461). The conclusions of these studies do not unambiguously show any general improvement in the perception of safety culture. E.g. repeated survey performed in Belgian hospitals showed a significant improvement in the hospital management`s support to patient safety. No improvements, sometimes even dropping scores were seen in the following dimensions: "handoffs and transitions between units" and "shifts", "non-punitive response to errors" and "staffing" (Hellings et al., 2010, p. 489).

The assessment of the validity and reliability of the HSOPSC evaluation tool appears is overall acceptable and supports the view of maintaining a unified structure of selected dimensions that will allow international comparisons.

Limitation

The analysis of the use of the standardized HSOPSC tool in European countries has some limitations that result from the criteria designed for processing. The basic limitations include looking up in three databases (PubMed, Science Direct and Bibliographica medica Čechoslovaca) and the time period (2010 – 2017).

Conclusion

Difficult linguistic and cultural adaptations of the original US tool for the use in Europe are extensive. Cultural differences and taxonomic mistakes were discussing by a number of authors (Vlayen et al., 2012, p. 760; Eiras et al., 2014, p. 121; Brborovič et al., 2013, p. 131). Low psychometric properties led to the adaptation of the number of dimensions, e.g. to 11 in the Dutch version (Vlayen et al., 2012, p. 767), to 14 in the Swedish version (Hedsköld et al., 2013, p. 1), to 9 in the British version (Waterson et el., 2010, p. 3) and to 8 in the Kosovo version (Brajshori et al., 2016, p. 483).

The conclusions of the surveys recommend the focus on the cultivation of the tool particularly in some dimensions, such as "staffing", "non-punitive response to errors", "teamwork" and "handoffs and transitions" (Perneger et al., 2014, p. 392; Hellings et al., 2007, p. 629; Brborovič et al., 2013, p. 131). Furthermore, qualitative studies connected with cultural dynamics and results of safety actions are recommended to be performed concurrently with the repeated safety culture surveys.

Despite certain limitations of published studies, it can be concluded that the psychometric properties of HSOPSC are acceptable. The information on the use of the standardized tool for quantitative Health Survey on Patient Safety Culture can be taken as a starting point for the direction of further more specified surveys.

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