Original Research

Comparing patient safety culture in Bulgarian, Croatian and American hospitals – preliminary results

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Abstract

Background and aims. Patient safety culture (PSC) is an essential component of the quality of healthcare. Improving PSC is considered a priority in many developed countries. A specialized software platform for registration and evaluation of hospital patient safety culture has been developed with the support of the Medical University Plovdiv Project №11/2017.

The aim of the study is to assess the status of PSC in Bulgarian hospitals and to compare it to that in USA and Croatian hospitals.

Methods. The study was conducted from June 01 to July 31, 2018 using the web-based Bulgarian Version of the Hospital Survey on Patient Safety Culture Questionnaire (B-HSOPSC). Two hundred and forty-eight medical professionals from different hospitals in Bulgaria participated in the study. In order to quantify the differences of positive scores distributions for each of the 42 HSOPSC items between Bulgarian, Croatian and USA samples, the χ^2-test was applied. The research hypothesis assumed that there were no significant differences between the Bulgarian, Croatian and US PSCs.

Results. The results revealed 14 significant differences in the positive scores between the Bulgarian and Croatian PSCs and 15 between the Bulgarian and the USA PSC, respectively. Bulgarian medical professionals provided less positive responses to 12 items compared with Croatian and USA respondents. The Bulgarian respondents were more positive compared to Croatians on the feedback and communication of medical errors (Items - C1, C4, C5) as well as on the employment of locum staff (A7) and the frequency of reported mistakes (D1). Bulgarian medical professionals were more positive compared with their USA colleagues on the communication of information at shift handover and across hospital units (F5, F7). The distribution of positive scores on items: "Staff worry that their mistakes are kept in their personnel file" (RA16), "Things 'fall between the cracks' when transferring patients from one unit to another" (RF3) and "Shift handovers are problematic for patients in this hospital" (RF11) were significantly higher among Bulgarian respondents compared with Croatian and US respondents.

Conclusions. Significant differences of positive scores distribution were found between Bulgarian and USA PSC on one hand and between Bulgarian and Croatian on the other. The study reveals that distribution of positive responses could be explained by the cultural, organizational and healthcare system differences.

Keywords: patient safety culture, healthcare, HSOPSC

Introduction

Patient safety culture (PSC) is an essential component of healthcare quality, its promotion and improvement is considered a priority in many countries. Patients' safety refers to the extent to which patients are protected against avoidable harm in the process of medical care [1].

'Safety culture' is a broader term, a global phenomenon, encompassing the norms, values and basic assumptions of the entire organization. Climate, on the other hand, is more specific and refers to the employees' perceptions of particular aspects of the organization's culture [2]. Measuring safety culture is important as organization culture and team attitudes have been found to influence patient safety outcomes and could serve as measuring tools to monitor change over time. At present many countries are in the process of, or have established systems

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to report and analyze adverse events and errors in medical practice [3]. The knowledge towards reporting concerns about medical errors and adverse events is fundamental to patient safety and relates to the capacity of the system to support reporting [4]. In most healthcare systems, a number of information and communication technologies (ICTs) incorporated in complex patient safety systems are under development and implementation [5].

Currently, the internationally validated instrument - Hospital Survey on Patient Safety Culture (HSOPSC), developed by the Agency for Healthcare Research and Quality (AHRQ) is one of the three instruments, recommended for internal use in the EU Member States [6]. Prior to the linguistic validation of the Bulgarian version of the Hospital Survey on Patient Safety Culture (B-HSOPSC), the Bulgarian healthcare system lacked an internationally validated instrument to measure PSC [7]. In fact, in our country, regular surveys on patient satisfaction are performed, however, they do not include questions related to PSC [6].

The aim of the study was to assess the state of PSC in Bulgarian hospitals and compare it with that in Croatian and US hospitals on the basis of HSOPSC.

Materials and methods

The study was designed as a comparative analysis between the Bulgarian, Croatian and American Versions of the HSOPSC.

The comparative analysis was made, based on the data, from our original online research, performed in Bulgaria and on the data, available in the study, conducted by Šklebar et al. [8].

The online query was conducted as part of the Medical University Plovdiv' Project №11/2017 titled: "Development and Introduction of a web-based platform for registration and evaluation of hospital patient safety culture and performing a representative study for the country". Ethical approval was obtained from the University Research Ethics Committee (№ 05/19.10.2017). Data, accumulated in the period from June, 1 to July 31, 2018 were included in the survey. Doctors, nurses and other healthcare professionals from Bulgarian hospitals took part in the survey. A total of 248 correctly completed surveys were submitted for analysis. The survey was organized as a multistep process, initially - 50 out of a total of 346 hospitals were randomly selected from all 28 administrative areas in the country. In compliance with the AHRQ methodology, a survey cover letter, with the web-platform survey address and information brochures, introducing the purpose and expected outcomes of the project were distributed by post or e-mail to the hospitals [9]. Additionally, at the adjacently located hospitals, face to face meetings with the hospital directors were organized. Both, the personal meetings and letters were aimed at achieving the managers' co-operation along with encouragement of hospital staff to participate in the survey. At this stage, to avoid staff anxiety, regarding negative consequences and to encourage them to participate, no questions about the hospital name and details were asked explicitly. The participants were required to only indicate the administrative country's areas where the hospital was located, its ownership and teaching status. The subsequent stages of the survey included a follow- up reminder phone calls to the hospital managers. At the final stage of the study, hospitals from 5 administrative country's areas in South Central Region, participated in the web survey.

The e-based platform was used for online, anonymous query of staff members from different Bulgarian hospitals, using the web-based version of the B-HSOPSC [10].

The validated B-HSOPSC includes 42 questions, grouped in 12 different subscales that measure patient safety culture [7]. The B-HSOPSC allows undesirable events or errors to be reported and registered. It also provides information on certain social and demographic factors such as place of employment and work position of the respondents.

A five-point scale to measure agreement (from strongly agree to strongly disagree) or frequency (from always to never) was used. On the basis of the original US survey requirements, some items were reverse coded (A5, A7, A8, A10, A12, A14, A16, A17, B3, B4, C6, F2, F3, F5, F6, F7, F9 and F11) - disagreement or low frequency indicate a positive response in terms of patient safety culture.

Results for each dimension are expressed as a percentage of positive, negative and neutral responses on the Likert scale. Positive responses include the statements "I agree" and "I strongly agree" for questions measuring agreement or "most of the time" and "always" for questions measuring frequency. Negative responses include the statements "I disagree" and "I strongly disagree" or "rarely" and "never" respectively. The current study design is in compliance with the methodology applied in most US hospitals. The same approach was used in the Croatian study, thus allowing a comparison of the results. The average rate of positive responses was used to compare the results of the Croatian and US datasets with the BG database, an approach recommended by the AHRQ. The distribution of differences in the positive scores for each of the 42 HSOPSC items between the Croatian, US and Bulgarian samples were tested by the $\chi 2$-test. Chi-square test was applied, using proportions and denominated statistical data for the sample sizes available in the Croatian studies, comparing the results of the US and Croatian HSOPSC [8].

Distribution differences of positive scores for each of the 42 HSOPSC items between the Bulgarian, Croatian and USA samples were tested by $\chi 2$-test, $P<0.05$.

The research hypothesis assumes that there are no significant differences between the Bulgarian, Croatian and US PSCs.

Results

Two hundred and forty-eight healthcare specialists from different hospitals in Bulgaria participated in the study. Their socio-demographic characteristics are presented in Table I.

Results identified 14 significant differences in positive scores between the Bulgarian and Croatian PSCs and 15 significant differences between the Bulgarian and the USA PSCs (Table II). The Bulgarian medical specialists provided less positive responses to 12 items compared with Croatian and USA respondents. On the contrary, Bulgarian respondents were more positive in comparison with the Croatians on the following items: Feedback and Communication about medical errors (Items - C1, C4, C5), Using of temporary staff (A7) and Frequency of reported mistakes (D1). Bulgarian medical specialists were more positive in comparison with the USA respondents on items, regarding transmission of information during shift changes and across hospital units (F5, F7). The distribution of positive scores on items: Staff worry that mistakes they make are kept in their personnel file (RA16), Things 'fall between the cracks' when transferring patients from one unit to another (RF3) and Shift changes are problematic for patients in this hospital (RF11) were significantly higher among Bulgarian respondents compared with Croatian and USA respondents.

Table I. The socio-demographic characteristics of the respondents.

		n	%
What is your current staff position?	Registered Nurse	106	42.7
	Healthcare Specialist	10	4.0
	Student Nurse	3	1.2
	Senior/Head of Nursing staff	51	20.6
	Consultant Physician	39	15.7
	Resident /Specialty trainee	22	8.9
	Assistant Nurse	9	3.6
	Medical Technician (e.g., EKG, Lab, Radiology)	4	1.6
	Administration/ Management	4	1,6
	Total	**248**	**100**
How long have you worked in your current workplace?	Under 1 year	23	9.3
	1 to 5 years	77	31.0
	6 to 10 years	53	21.4
	11 to 15 years	31	12.5
	16 to 20 years	24	9.7
	More than 21 years	40	16.1
	Total	**248**	**100**
Your current workplace	Different hospital units/No specific unit	12	4.8
	Non-surgical unit	72	29.0
	Surgery	52	21.0
	Obstetrics and Gynecology	9	3.6
	Pediatrics	16	6.5
	Emergency department	6	2.4
	Intensive care unit (any type) and Anesthesiology	21	8.5
	Psychiatry (mental health)	2	0.8
	Physiotherapy and rehabilitation	8	3.2
	Laboratory	12	4.8
	Other	38	15.3
	Total	**248**	**100**
Direct contact with patients	YES, I typically have direct interaction or contact with patients	227	91.5
	NO, I typically do NOT have direct interaction or contact with patients	21	8.5
	Total	**248**	**100**
Hospital ownership type	State / municipal	122	49.2
	Private	126	50.8
	Total	**248**	**100**
Teaching/ Training Hospital	Yes	187	75.4
	No	61	24.6
	Total	**248**	**100**

Table II. Differences in positive scores between Bulgarian, Croatian and USA PSC.

42 items and 12 dimensions of patient safety culture	Bulgaria % Positive	Croatia % positive*	US % positive*	p (χ^2) BG/Croatia	p (χ^2) BG/ US
Overall perceptions of safety					
Patient safety is never sacrificed to get more work done (A15)	64	77	64	<0.05	NA**
Our procedures and systems are good at preventing errors from happening (A18)	68	81	71	<0.001	NA
It is just by chance that more serious mistakes do not happen around here (RA10)	57	58	61	NA	NA
We have patient safety problems in this unit (RA17)	75	80	63	NA	NA
Frequency of events reported					
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? (D1)	62	48	54	<0.05	NA
When a mistake is made, but has no potential to harm the patient, how often is this reported? (D2)	52	47	57	NA	NA
When a mistake is made that could harm the patient, but does not, how often is this reported? (D3)	64	57	73	NA	NA
Supervisor/manager expectations and actions promoting patient safety					
My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures (B1)	69	57	72	NA	NA
My supervisor/manager seriously considers staff suggestions for improving patient safety (B2)	66	73	77	NA	NA
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (RB3)	35	66	73	<0.001	<0.001
My supervisor/manager overlooks patient safety problems that happen over and over (RB4)	77	81	76	NA	NA
Organizational learning – continuous improvement					
We are actively doing things to improve patient safety (A6)	68	89	82	<0.001	<0.05
Mistakes have led to positive changes here (A9)	60	50	64	NA	NA
After we make changes to improve patient safety, we evaluate their effectiveness (A13)	64	63	68	NA	NA
Teamwork within units					
People support one another in this unit (A1)	62	69	85	NA	<0.001
When a lot of work needs to be done quickly, we work together as a team to get the work done (A3)	76	82	86	NA	NA
In this unit, people treat each other with respect (A4)	60	59	78	NA	<0.05
When one area in this unit gets really busy, others help out (A11)	52	68	69	<0.05	<0.05
Communication openness					
Staff will freely speak up if they see something that may negatively affect patient care (C2)	65	60	76	NA	NA
Staff feel free to question the decisions or actions of those with more authority (C4)	45	21	47	<0.001	NA
Staff are afraid to ask questions when something does not seem right (RC6)	58	52	63	NA	NA
Feedback and communication about error					
We are given feedback about changes put into place based on event reports (C1)	42	25	55	<0.05	NA
We are informed about errors that happen in this unit (C3)	57	58	65	NA	NA
In this unit, we discuss ways to prevent errors from happening again (C5)	69	54	71	<0.05	NA
Nonpunitive response to error					
Staff feel like their mistakes are held against them (RA8)	36	39	51	NA	<0.05
When an event is reported, it feels like the person is being written up, not the problem (RA12)	38	30	46	NA	NA
Staff members worry that mistakes they make are kept in their personnel file (RA16)	51	35	35	<0.05	<0.05
Staffing					
We have enough staff to handle the workload (A2)	36	43	56	NA	<0.05
Staff in this unit work longer hours than is best for patient care (RA5)	13	43	53	<0.001	<0.001
We use more agency/temporary staff than is best for patient care (RA7)	72	36	66	<0.001	NA
We work in 'crisis mode' trying to do too much, too quickly (RA14)	25	34	50	NA	<0.001
Hospital management support for patient safety					
Hospital management provides a work climate that promotes patient safety (F1)	64	64	81	NA	<0.05
The actions of hospital management show that patient safety is a top priority (F8)	63	63	74	NA	NA
Hospital management seems interested in patient safety only after an adverse event happens (RF9)	60	50	60	NA	NA

Table II. Differences in positive scores between Bulgarian, Croatian and USA PSC (continued).

42 items and 12 dimensions of patient safety culture	Bulgaria % Positive	Croatia % positive*	US % positive*	p (χ^2) BG/Croatia	p (χ^2) BG/ US
Teamwork across hospital units					
There is good cooperation among hospital units that need to work together (F4)	66	64	59	NA	NA
Hospital units work well together to provide the best care for patients(F10)	67	59	68	NA	NA
Hospital units do not coordinate well with each other (RF2)	55	64	46	NA	NA
It is often unpleasant to work with staff from other hospital units(RF6)	56	43	59	NA	NA
Hospital handoffs and transitions					
Things 'fall between the cracks' when transferring patients from one unit to another (RF3)	70	55	41	<0.05	<0.001
Important patient care information is often lost during shift changes(RF5)	74	78	49	NA	<0.001
Problems often occur in the exchange of information across hospital units (RF7)	60	57	42	NA	<0.05
Shift changes are problematic for patients in this hospital (RF11)	83	71	44	<0.05	<0.001

*Data from Šklebar, Ivan, et al. "How to improve patient safety culture in Croatian hospitals?"
**NA - non available statistical differences (P>0.05)

Discussion

Based on our preliminary results, the used instrument - B-HSOPSC- seems feasible and valuable for future application. Extremely low positive scores (13%) were obtained from Bulgarian respondents on Item "Staff in this unit work longer hours than is best for patient care (RA5)" (Dimension Staffing). The likely explanation for this is the understaffing of hospital settings in Bulgaria, due to the decreasing number of doctors and nurses over the last 20 years. This has resulted in work overload during the shifts. Similar results are reported by Tereanu and al. in their study, the percentage of positive scores to Question A5 was 14% and the situation at healthcare staffing market is similar [11]. The second item with lowest positive score (35%) obtained from Bulgarian medical staff is: "Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (RB3)". This phenomenon could be explained by the specifics of the post-communist countries, where the authoritarian and hierarchical management style still predominates. The democracy level in these countries is still different compared to that in the USA (the country of origin of the HSOPSC) [8,11,12]. The lower positive score on the dimension "Teamwork within units" in Bulgarian hospitals, when compared Croatian and American, could be explained by the specific for Bulgarians individualistic mindset and behavior. Generally, the medical staff fear that their errors are kept in their personnel file. However, Bulgarians tend to ignore this fact more and show less concern about it, compared to Americans and Croatians [8].

Conclusions

Significant differences of positive scores were found between Bulgarian and USA patient safety culture as well as between Bulgarian and Croatian. The study reveals that the distribution of positive responses is most likely due to differences in the cultural and psychological attitudes as well as to differences in healthcare organization. All mentioned aspects are presently under detailed investigations and analysis.

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