



At the Crossroads of the Patients Safety Culture Evaluation and Challenges

Nato Pitskhelauri^{a*}, Sopio Gvazava^b, Nino Chikhladze^c

^a*Postdoctoral Fellow, Faculty of Medicine, Tbilisi State University, 1, Chavchavadze Ave., Tbilisi, 0179, Georgia*

^b*PhD Student, Faculty of Medicine, Tbilisi State University, 1, Chavchavadze Ave., Tbilisi, 0179, Georgia*

^c*Associate Professor, Faculty of Medicine, Tbilisi State University, 1, Chavchavadze Ave., Tbilisi, 0179, Georgia*

^a*Email: n_a_t_o_nato@yahoo.com*

^b*Email: softegvazava@gmail.com*

^c*Email: nino.chikhladze@tsu.ge*

Abstract

The patient safety is considered as one of the most important components of the quality of health care as well as a global public health issue. Furthermore, the measurement of patient safety culture is one of the main priorities in many countries. The concept of patient safety and quality healthcare is relatively recent in countries of EU Eastern Neighboring Area. In fact, research addressing patients' safety culture is very limited in Georgia. The main aim of the study is to explore the patient safety culture in Georgian hospitals. The Hospital Survey on Patient Safety Culture Questionnaire elaborated by Agency for Healthcare Research and Quality has been used for the survey. The highest average of positive answers is in the following three dimensions: „Teamwork within Units” (85%), „Management Support for patient Safety” (77%) and „Overall Perceptions of Patient Safety” (77%). The lowest Average of positive answers is in the dimension „Nonpunitive Response to Errors” (33%).

*Corresponding author.

In the average of the positive responses there was not statistically significant difference between gender (female respondents- 66% and male respondents- 68%; $p=0.91$), staff positions (physicians - 68%; nurses - 66%; other - 60%; $p=0.74$), working areas (medicine - 65%, obstetrics/pediatrics - 69%, surgery – 74%, radiology – 72%, emergency medicine/ intensive care – 62% , other – 65%, $p=0.83$), professional experience (<5 year - 61%, 5-10 year – 72%, 11-15 year – 74%, ≥ 15 – 67%, $p=0.51$). The majority of hospital staff (63,7%) answered that no adverse event has been reported during the last 12 months in their working areas. The current study has enabled to gain the first insights into patient safety culture in Georgian Hospitals and has opened a perspective for future large-scale research.

Keywords: Safety culture; Patient safety; Healthcare quality; Hospital survey.

1. Introduction

The patient safety is considered as one of the most important components of the quality of health care as well as a global public health issue. In medium- and high-income countries statistics show, that on average „one in 10 inpatients will experience a harmful incident during their stay in hospital” [1]. According to the recommendations of the Institute of Medicine it is crucial to stimulate open culture towards the adverse events in medical facilities in order to learn from their mistakes, prevent future errors and promote patient safety [2].

Safety culture is considered by Health and Safety Commission as: „The product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management”[3]. Safety culture is mostly important in Medical facilities where patient's safety culture means preventing adverse events, reducing medical error and unsafe medical practice. Furthermore, the measurement of patient safety culture is one of the main priorities in many countries [4]. Several Instruments were elaborated for assessing patient safety culture in medical facilities, among them is the Hospital Survey on Patient Safety Culture Questionnaire (HSOPSC) that has been elaborated by Agency for Healthcare Research and Quality (AHRQ). The questionnaire has been used in research in western countries (USA, UK, Switzerland, Netherland, Sweden, Belgium, Norway), in European transitional countries (Slovenia, Slovakia, Croatia) and also in some eastern Asian countries (Iran, China, Taiwan, Turkey, Lebanese Republic, Japan) etc. The concept of patient safety and quality healthcare is relatively recent in countries of EU Eastern Neighboring Area. In fact, research addressing patients' safety culture is very limited in Georgia. The main aim of the study is to explore the patient safety culture in Georgian hospitals.

2. Methods

The survey has been designed to assess the attitude of hospital clinical and non-clinical staff about medical errors, adverse event reporting and patient safety culture. The study has been carried out in March-June 2016. The survey was conducted in randomly selected 7 hospitals in Georgia. 350 questionnaires were distributed and a total 248 respondents have completed the survey (response rate 70, 8%). On the next stage 47 incomplete questionnaires have been removed due to the following exclusion criteria: no entire item completed, fewer than half of the items answered or the same point has been selected for all items.

The HSOPSC questionnaire has been used for the survey. The questionnaire covers 12 dimensions and 42 items of patient safety culture. The survey includes two questions with regards to providing an overall grade on patient safety for their work area/unit and indicating the number of events reported over the past 12 months. The HSOPSC questionnaire consists of multiple-item scales for unit-level (7 dimensions: 1, 2, 3, 6, 7, 10, 12), hospital level (3 dimensions: 4, 9, 11) patients safety culture measures and outcome measures (2 dimensions: 5, 8) and also two single-item (I, II) outcome measures. From 42 items of HSOPSC questionnaire 18 are negatively worded (A5, A7, A8, A10, A12, A14, A16, A17, B3, B4, C6, F2, F3, F5, F6, F7, F9, F11). The structure of the HSOPSC questionnaire is presented in box №1.

Table 5

Box №1 Structure of HSOPSC Questionnaire
1. Teamwork Within Units (A1, A3, A4, A11)
2. Supervisor/Manager Expectations&Actions Promoting Patient Safety (B1, B2, B3, B4)
3. Organizational Learning – Continuous Improvement (A6, A9, A13)
4. Management Support for patient Safety (F1, F8, F9)
5. Overall Perceptions of Patient Safety (A10, A15, A17, A18)
6. Feedback&Communication About Error (C1, C3, C5)
7. Communication Openness (C2, C4, C6)
8. Frequency of Events Reporting (D1, D2, D3)
9. Teamwork Across Units (F2, F4, F6, F10)
10. Staffing (A2, A5, A7, A14)
11. Handoffs&Transitions (F3, F5, F7, F11)
12. Nonpunitive Response to Errors (A8, A12, A16)
I Patients Safety Grade (E1)
II Number of Events Reported (G1)

The respondents were asked to provide limited background information about their demographic and professional characteristics (primary work area, total professional experience in year, work unit experience in year, length of working time in hours in week, etc).

All the questionnaires included a brief description of the aim of the study. The respondents were informed about the principle of voluntary participation and confidentiality in the survey.

The original version of the questionnaire has been translated into Georgian. The translation has been reviewed by an expert. Afterwards it has been translated back in English by a professional translator. The draft was tested in two different hospitals by clinical (4) and non-clinical staff (4). In the end the questionnaire has been reviewed and the final version has been elaborated.

The five point Likert scale was used for the scale of agreement (from „strongly disagree” to „strongly agree”) and frequency (from „never” to „always”). For the statistical analysis SPSS 21 version and Excel 2010 were used, applying descriptive statistics, Pearson’s chi-square tests, student’s t-test, ANOVA.

3. Results

Totally 201 questionnaires have been fully completed in accordance to the AHRQ guidelines by respondents from 7 hospitals. The largest percentage of respondents was female (72, 6%). Approximately third of the respondents were younger than 35 or in the age interval 35-45. The demographic characteristics of the study sample are presented in Table №1.

Table 1: Demographic Characteristics of the Study Sample

Independent variable	n	%
Gender		
Female	146	72,6%
Male	55	27,4%
Age		
<35	74	36,8%
35-45	65	32,3%
45-55	48	23,8%
>55	13	6,5%
Total	201	100%

Clinical and non-clinical staff has participated in the study. Clinical staff were mostly physicians 125 (62,2%) and nurses 59 (29,4%). 95,5% of the respondents reported direct interaction with patients. The most frequent work areas of the respondents were: Medicine (22,4%), Obstetrics and Pediatrics (19,4%), Surgery (18,9%),

Radiology (8,0%), Emergency medicine and Intensive care (14,9%). 16,4% of respondents did not report their primary work area. Approximately/Around third of the clinical staff have had 5 year experience in profession (37.8%) in their hospitals and for the majority the length of weekly working hours was 40-59 hours (62,7%). Professional characteristics of the respondents are presented in Table №2.

Table 2: Professional characteristics of the study sample

Independent variable	n	%
Staff Position		
Medical Staff	125	62,2%
Nursing Staff	59	29,4%
Other (technician, etc)	17	8,4%
Work Areas		
Medicine	45	22,4%
Obstetrics /Pediatrics	39	19,4 %
Surgery	38	18,9%
Radiology	16	8,0%
Emergency medicine/ Intensive care	30	14,9%
Non-specific	33	16,4%
Experience in Profession		
<5 year	76	37.8%
5-10 year	58	28.9%
11-15 year	20	10,0%
≥15	47	23,4%

The totals of 18 negatively worded items were reversed and the percentages of positive responses on patient safety culture were calculated. The strong areas (respondents' positive answers 75% and more) and the areas for potential improvement (respondents' negative answers 50% and more) have been identified. The highest

average of positive answers is in the following three dimensions: „Teamwork within Units’’ (85%), „Management Support for patient Safety’’ (77%) and „Overall Perceptions of Patient Safety’’ (77%).

The lowest Average of positive answers is in the dimension „Nonpunitive Response to Errors’’ (33%). All other positive answers vary from 53% to 74%. The average of positive answers on patient safety culture for all 12 dimensions is 66,3%. The internal reliability for majority of items is in the interval 0.6-0.7. The percentages of positive responses are presented in the Table №3.

Table 3: Average of positive responses

Questionnaire’s dimensions	Average of positive responses
1. Teamwork Within Units	85%
2. Supervisor/Manager Expectations&Actions Promoting Patient Safety	67%
3. Organisational Learning – Continuous Improvement	74%
4. Management Support for patient Safety	77%
5. Overall Perceptions of Patient Safety	77%
6. Feedback&Communication About Error	59%
7. Communication Openness	67%
8. Frequency of Events Reporting	59%
9. Teamwork Across Units	74%
10. Staffing	53%
11. Handoffs&Transitions	71%
12. Nonpunitive Response to Errors	33%
Average of positive responses	66,3%

Furthermore, the differences in demographic and professional characteristics have been examined. The average of positive responses is lower in female than male and lower in nurses than in physicians. The average of positive responses is higher in surgery department than in all other working areas and is higher for staff with 11-15 years professional experience. However, in the average of the positive responses there was not statistically significant difference between gender (female respondents- 66% and male respondents- 68%; $p=0.91$), staff positions (physicians - 68%; nurses - 66%; other - 60%; $p=0.74$), working areas (medicine - 65%, obstetrics/pediatrics - 69%, surgery – 74%, radiology – 72%, emergency medicine/ intensive care – 62% , other – 65%, $p=0.83$), professional experience (<5 year - 61%, 5-10 year – 72%, 11-15 year – 74%, ≥ 15 – 67%, $p=0.51$).

The majority of hospital staff (62,7%) evaluated patients safety as excellent and very good, the third of hospital staff (32,3%) evaluated it as acceptable, and only 5% of respondents evaluated patients safety as poor and failing. The differences in demographic and professional characteristics were also examined. Overall evaluation of patient safety is high in male than in female and high in physicians than in nurses. The overall patient safety grade is higher in radiology department than in all other working areas and is higher for the staff with 11-15 years experience in profession. However, in the evaluation there is no statistically significant difference between gender (female respondents- 61,6% and male respondents- 65,5%; $p=0.15$), staff positions (physicians –67,2%; nurses - 54,2%; other – 58,8%; $p=0.31$), experience in profession ($p=0.07$).

The majority of hospital staff (63,7%) have answered that no one adverse event had been reported during the last 12 months in their working areas, approximately equal number (14,7% and 13,2%) of respondents answered that 1-2 or 3-5 adverse events were reported, and only minority of respondents (8.5%) reported more than 5 adverse events (there's no statistically significant difference between gender $p=0.07$).

The differences in patient safety culture dimensions were examined by gender, working area, position and experience of the respondents. The results showed that differences by gender is statistically significant only in two patient safety culture dimensions: Teamwork Within Units (Female $M=4.15$; $SD=0.59$; Male $M=4.38$; $SD=0.5$; $t(199)=-2.56$; $p=0.01$) and Staffing (Female $M=3.29$; $SD=0.59$; Male $M=3.53$; $SD=0.5$; $t(199)= -2.66$ $p=0.008$). Correlational analysis has revealed that there is statistically significant correlation between different dimensions, as shown in the Table №4.

Table 4: Correlational analysis

	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	.288**	1										
3	.483**	.315**	1									
4	.424**	.470**	.358**	1								
5	.196**	.245**	.160*	.502**	1							
6	.422**	.161*	.514**	.377**	.328**	1						
7	.395**	.470**	.394**	.432**	.255**	.491**	1					
8	.452**	.356**	.265**	.464**	.274**	.432**	.389**	1				
9	.219**	.360**	.095	.658**	.395**	.174*	.370**	.432**	1			
10	.307**	.298**	.334**	.212**	.244**	.131	.266**	.229**	.202**	1		
11	.261**	.143*	.206**	.463**	.386**	.368**	.262**	.373**	.496**	.220**	1	
12	.018	.238**	.022	.208**	.160*	-.178*	.322**	-.010	.239**	.169*	-.002	1

Note: ** Correlation is significant at the 0.01 level; * Correlation is significant at the 0.05 level.
 1 Teamwork within units; 2 Supervisor/manager expectation and actions promoting safety; 3 Hospital

management support for patient safety; 4 Organizational learning--continuous improvement; 5 Overall perception of safety; 6 Feedback and communication about error; 7 Communication openness; 8 Frequency of event reporting; 9 Teamwork across hospital units; 10 Staffing; 11 Hospital handoffs and transitions; and 12 Nonpunitive response to error.

One-way ANOVA analysis revealed that differences by working area is statistically significant in seven patient safety culture dimensions: Management Support for Patient Safety ($F(5, 199)=3.755$, $p=0.003$), Overall Perceptions of Patient Safety ($F(5, 199)=6.479$; $p=0.000$), Feedback & Communication About Error ($F(5, 199)=4.419$; $p=0.001$), Teamwork Across Units ($F(5, 199)=3.694$; $p=0.003$), Staffing ($F(5, 199)=3.725$; $p=0.003$), Handoffs and Transitions ($F(5, 199)=2.441$, $p=0.036$), Nonpunitive Response to Errors ($F(5, 199)=11.313$; $p=0.000$).

The results showed that differences by staff positions were statistically significant only in three patient safety culture composites: Supervisor/Manager Expectations & Actions Promoting Patient Safety ($F(2, 198)=4.621$; $p=0.011$), Frequency of Events Reported ($F(2, 198)=3.231$; $p=0.042$) and Staffing ($F(2, 198)=3.119$; $p=0.046$).

According to the results, differences by work experience were statistically significant in eight patient safety culture composites: Teamwork Within Units ($F(3, 197)=4.228$; $p=0.006$), Supervisor/Manager Expectations & Actions Promoting Patient Safety ($F(3, 197)=6.793$; $p=0.000$), Organizational Learning - Continuous Improvement ($F(3, 197)=4.406$; $p=0.005$), Management Support for Patient Safety ($F(3, 197)=6.515$; $p=0.000$); Perceptions of Patient Safety ($F(3, 197)=3.059$; $p=0.029$); Teamwork Across Units ($F(3, 197)=10.560$; $p=0.000$), Staffing ($F(3, 197)=7.913$; $p=0.000$); Handoffs & Transitions ($F(3, 197)=5.327$; $p=0.002$).

4. Discussion

The study has found that the average of positive answers on patient safety culture for all 12 dimensions is 66,3%. The grade in our study is higher than in Slovakia (50%), Slovenia (53%), but less than in USA [5-8]. The weakest area in our study is „Nonpunitive Response to Errors”, similar to research results in Slovenia, Croatia and Turkey [6-11]. The majority of hospital staff (62,7%) evaluated patients safety as excellent and very good. Analogue evaluation grade were found in Slovakia (62%), Saudi Arabia (60%), Slovenia (57%) [5,12,6,7]. The adverse event reporting system is more developed in western countries, which have comparably long tradition of culture patients safety than transitional European societies and countries of EU Eastern Neighboring Area. In our study about 64% of hospital staff did not know about any adverse event reported in their unit. In other countries the majority of health workers also reported the same answers, for example in Slovakia (82%) and Saudi Arabia (60%), however in Slovenia the percentage (47%) is lower [5-7], [12].

5. Conclusion

The current study has enabled to gain the first insights into patient safety culture in Georgian hospitals. The study indicates the strongest and weakest areas that need further improvements. Therefore, more effort is needed

in order to implement continuing professional education in patient safety and to enhance the patient safety culture in hospital Facilities in Georgia.

6. Limitation

The limitation of the study is small number of respondents, especially non-clinical staff. However the study opened a perspective for future large-scale research.

Ethical considerations

The study was approved by the Ethics Committee of National Center for Diseases Control and Public Health (NCDC) of Georgia and by the Scientific Board (SB) of the Tbilisi State University, Faculty of Medicine.

Competing interests

The authors declare that they have no competing interests.

Author's contribution

NP contributed to the study design, data collection, statistical analysis, interpretation of the data, drafted the manuscript, SG contributed to the data collection and formation of database, NC provided substantial input to the intellectual content of the manuscript and provided revisions of the manuscript. All authors approved the final manuscript.

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