



STUDY ON THE ORGANIZATIONAL CULTURE OF PATIENT SAFETY

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Abstract: This study uses the questionnaire of the "Agency for healthcare research and quality" and aims to analyse the key elements of the organizational culture regarding patient safety in a hospital unit. The aim is to identify both the main strengths as defined by the AHRQ questionnaire and the points which need improvement, more importantly, the aspects which lead to the improvement of organizational culture and implicitly, of patient safety in the hospital setting. Data analysis is done both globally and on distribution characteristics in order to be able to detail a future plan of measures, which will be addressed punctually on the identified axes.

INTRODUCTION

Patient safety is the activity aimed at preventing possible injuries or side effects related to medical care. A safe working environment contributes to the provision of safe medical services for both patients and medical staff.(1)

Reducing the risk of adverse events that can contribute to decreased patient safety should be a permanent concern of hospitals, but not only. One of the barriers that contribute decisively to reducing the risk of adverse events or medical errors, is the organizational culture. Organizational culture refers to the beliefs, values, and norms shared by staff within the entire organization, that influence their actions and behaviours. Patient safety culture is the extent to which these beliefs, values, and norms support and promote patient safety and are shared by the staff. Patient safety culture can be measured by determining what is appreciated, supported, expected and accepted by the organization in terms of patient safety.(2)

The questionnaire used is a diagnostic tool for assessing the current state of the patient's safety culture.

Working hypothesis

The main working hypothesis for this study is whether, at the level of the hospital unit for which the research is applied, there is an organizational culture to ensure patient safety, whether the necessary conditions are met as it results from the literature, so that those basic organizational values, which directly influence patient safety, are present and ensure patient safety and security by identifying, removing and reducing the risk of medical errors.

The alternative hypothesis of the study consists in knowing and measuring the elements that contribute and influence the patient's safety at the level of a health unit in Sibiu county, elements that lead to the decrease of patient safety by the risk produced by the frequency of adverse events and elements that may increase safety.

AIM

The aim of the study is to assess the level of safety / security of the patient in the hospital, and to identify weaknesses in the provision of medical services, those elements and factors

that could be involved in the professional behaviour of the medical staff that may influence this area.

The objectives of the study are established according to the structure of the questionnaire.

- evaluation of teamwork in the provision of health care;
- evaluation of open communication about patient safety;
- assessment of hospital staff awareness and information on patient safety;
- evaluation of continuous improvement within the hospital regarding patient safety;
- evaluation of the continuous professional training and improvement of the medical and non-medical staff at the level of the health unit;
- management support and patient safety expectations;
- feedback and communication of errors.

MATERIALS AND METHODS

In order to verify the hypotheses and achieve the aimed objectives, it was decided to use a questionnaire developed by the US Agency for Research and Health Care (AHRQ).(3) This questionnaire was taken from the US agency's website being developed specifically to be applied at hospitals unit for the hospital staff, questioning all categories of personnel about their perception of the patient safety culture in the hospital where they work. According to those who developed this questionnaire, it can be used to:

- raise staff awareness of patient safety,
- assess the current state of the patient safety culture,
- identify strengths and areas for improving the culture of patient safety;
- examine the trends in changing the culture of patient safety over time;
- assess the cultural impact of patient safety initiatives and interventions;
- make comparisons within and between organizations.

Presentation of the group of subjects

The research was carried out at the level of a sanitary unit with beds in Sibiu County. The staff chosen for the study

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was distributed by types of occupations in **medical staff**: doctors, pharmacists, biologists, biochemists, psychologists, nurses, and **non-medical staff**, these being part of the administrative staff.

This classification was established mainly taking into account the direct or indirect interaction with patients.

Taking into account the multitude of professional degrees and specializations, both for medical and non-medical staff, also due to the very diverse experience in terms of seniority in the ward or seniority in the hospital, we decided to define four structuring characteristics, so that the final analysis of the outcomes can be structured as follows:

- ward or compartment (to which it belongs);
- occupation or position within the organization;
- seniority in the ward to which it belongs;
- seniority within hospital.

We defined for each structuring characteristic a nomenclature and each respondent was asked in the questionnaire to answer questions in order to be included into one of the categories.

The nomenclatures of the structuring categories are given in the tables below:

Table no. 1. Structuring characteristic by type of staff

According to occupation	Occupation
Physicians	Primary, specialist and resident physicians
Nurses	Nurses with higher education and those with post-secondary education
Other medical staff	Pharmacists, biologists, biochemists and psychologists
Administrative	Other staff with higher or secondary education in the administrative area

Table no. 2. Structuring characteristic by the type of ward

According to ward/compartment	Wards/Compartments
Surgical wards	General surgery, operating room, Intensive-Care Unit, Ear-Nose-Throat (ENT), ophthalmology, oral and maxillofacial surgery, urology, orthopedics, gynecology
Medical wards	Internal medicine, day hospitalization
Clinical wards	Radiology, outpatient, laboratory, pharmacy, Quality Management Service Office, Healthcare-Associated Infection Prevention Department
Emergency wards	Emergency room
Administrative	Administrative units

Table no. 3. Structuring characteristic by seniority (in ward or hospital)

Seniority in ward/hospital
Less than a year
Between 1 and 5 years
Between 6 and 10 years
Between 11 and 15 years old
Over 16 years

Calculation and characteristics of the studied group

In order to establish the representative sample in order to apply the questionnaires, we took into account the structure of the hospital staff and the total number of employees (considered the total population for which the study is applied). At the level of the hospital unit, during the application of the study, 233 employees were working, who, taking into account the established structural characteristics, were divided as follows: doctors - 60 (26%), nurses - 123 (53%), other medical staff - 10 (4%) and administrative staff - 40 (17%) (figure no. 1).

To characterize this population, the size of the representative sample is calculated according to a generally

accepted formula, in which a confidence level of 95% has been established, with a sampling error of +/- 5%:(4,5)

$$n = t^2 \cdot p \cdot \left[\frac{1-p}{e^2} \right]$$

where:

n = sample size;

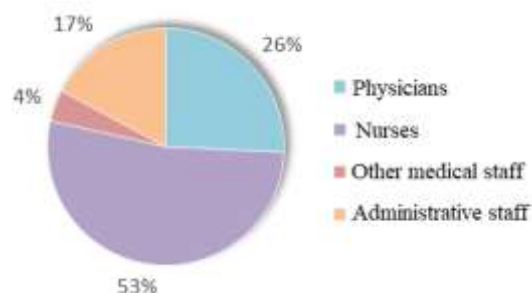
t = theoretical value of the accepted probability (t = 1.96 for a 95% confidence);

p = percentage in which the population is represented by the sampling characteristic (0.5);

e = representativeness limit error (5%).

In the end, it results: n = 384.

Figure no. 1. Structure of the personnel according to categories



The sample thus obtained by calculation was corrected according to the specific population studied at the hospital level, i.e. 233 employees. The calculation formula is:(6,7)

$$n_1 = n / \left[1 + \frac{n-1}{N} \right]$$

where:

n₁ is the corrected sample size;

n is the sample size obtained by calculation;

N is the total population - 233 employees

Finally, the representative sample thus corrected at the hospital level is: n₁ = 146 respondents. In conclusion, 146 questionnaires would be distributed for the study.

The resulting sample represents 63% of the total population, which consists of the entire staff of the hospital where we did the research.

Due to the studied topic, namely, the organizational culture regarding patient safety in the hospital, taking into account the existing staff structure and the direct interaction with the patient, we decided to reduce the number of questionnaires addressed to administrative staff (approx. 17% of total staff) not being directly involved in the relationship with the patient. Thus, in order to increase the relevance of the study in connection with the chosen topic, we redistributed questionnaires to the medical staff, namely to doctors and nurses. Finally, the 146 questionnaires were distributed as follows (figure no. 2):

- Doctors: 43 questionnaires (29% of the sample);
- Nurses: 87 questionnaires (60% of the sample);
- Other medical staff: 6 questionnaires (4% of the sample);
- Administrative staff: 10 questionnaires (7% of the sample);

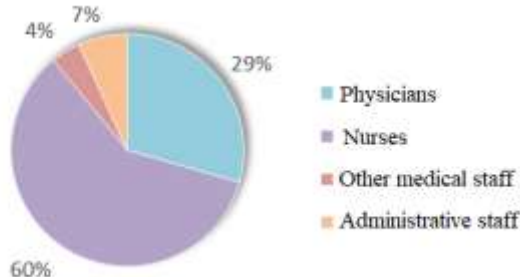
For the distribution of the questionnaires we also defined the following criteria for participation in the study:

Inclusion criteria:

- Physician or nurse or non-medical staff employed in the selected ward;
- Employee's acceptance for research inclusion;
- Data collection was done according to the principles of medical ethics.

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Figure no. 2. Research sample structure for research - by personnel categories



Exclusion criteria:

Employee's disagreement to participate in the study.

1.1. Research methodology

Based on the research participation agreement, observing the inclusion/exclusion criteria, the weights resulting from the staff structure with the correction of the administrative staff, which was diminished to increase the relevance of the result, the administrative staff not having direct interaction with the patient, we selected a number of 146 subjects and we distributed the study questionnaire.

The data collection was carried out between 01.02.2021 - 21.02.2021 at the level of a unit with 195 beds in Sibiu County.

The research tool used was the Questionnaire used by the US Agency for Research and Health Care (AHRQ). Respondents in the study sample were asked to answer this questionnaire anonymously, in order to ensure the sincerity and the accuracy of the answers in relation to the studied topic.

Questionnaire description: The questionnaire is structured in 8 main sections:

- Section A: Classification in the ward, compartment or area in which the respondent carries out his activity;
- Section B: Interaction with the direct hierarchical superior;
- Section C: About communication;
- Section D: Frequency of adverse events reported at the hospital level;
- Section E: Assessment of the general degree of patient safety;
- Section F: About the hospital in which the staff operate;
- Section G: Number of adverse events reported;
- Section H: General information about the respondent for inclusion in the structure characteristics.

The questionnaire has 42 questions or statements that respondents are asked to answer, by assessing the answer or statement on an associated Likert scale. In addition to the 42 questions, there is (section E) a request for a general assessment of patient safety by each respondent.

All 42 questions or statements in the questionnaire are consolidated into 11 general indicators. They measure the main factors that influence and substantiate the organizational culture regarding patient safety at the hospital level:

Presentation of composite indicators

Finally, the overall rate of positive responses, both for the composite indicators and for the elements of analysis, will measure the organizational culture on patient safety by the desired study categories.

Table no. 4. Definition of indicators in the AHQR questionnaire

Indicator code	Name	Explication
COMP1	Teamwork	The staff support each other, treat each other with respect and work

		together as a team. The hospital departments cooperate and coordinate with each other to provide the best care to patients.
COMP2	Expectations from the head regarding patient safety	The direct manager takes into consideration the staff's suggestions for improving patient safety, rewards and appreciates their contribution.
COMP3	Organizational learning - continuous improvement	Patient safety mistakes have led to positive changes and the changes are evaluated for effectiveness.
COMP4	Management support for patient safety	Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority.
COMP5	General perceptions of patient safety	Procedures and systems are good at preventing errors and they prevent the occurrence of situations that pose risks to patient safety.
COMP6	Feedback and error communication	The staff is informed about the errors that occur. Feedback is given on the changes implemented and ways to prevent errors are discussed.
COMP7	Open communication	The staff speak freely if they notice anything that might negatively affects a patient.
COMP8	Frequency of reported adverse events	Errors of the following types are reported: (1) errors discovered and corrected before affecting the patient, (2) errors without potential to harm the patient, and (3) errors that could harm the patient but did not affect him.
COMP9	About staff	There are enough staff to manage the workload and working hours are suitable to provide the best care to patients.
COMP10	Transmission of information / shift exchange	Important patient care information is transferred to all interested people / levels and during shift changes.
COMP11	Non-punitive response to errors	Staff feel that their patient safety mistakes are not imputed to them if they are reported and not recorded in their professional history.

These results will be used to develop an action plan with concrete measures to improve the organizational culture of patient safety, thus directly contributing to it.

RESULTS AND DISCUSSIONS

Following the analysis of the answers received, there is a high degree of interest at the level of the entire staff regarding the studied topic. Out of the total of 146 questionnaires distributed, 129 answers were registered, which represents a response rate of 88%.

The data collected from all the 146 questionnaires distributed according to the presented structure were collected and analysed from the point of view of their quality. 129 questionnaires were received. When the questionnaires were received they were numbered with a unique number and were registered in a database with the answers given, regardless of the time or the way in which they were returned.

Analysis of the answers and distribution of the valid ones by characteristics

We made a first analysis of the centralized data according to two criteria:

- a. From the perspective of completing the answers - it was aimed not to have non-answers to the distribution characteristics: occupation, ward or compartment and

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seniority in the hospital, respectively in the ward.

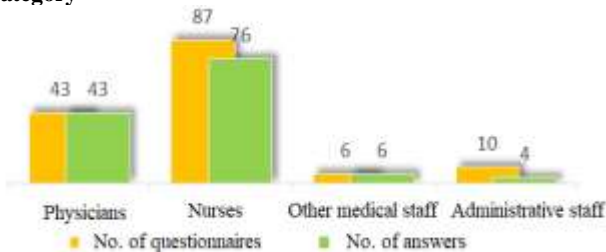
- b. From the perspective of the validity of the answers - it was aimed not to have questionnaires with the same answer to all questions.

Regarding the answers distributed according to the category of staff, the analysed data are presented in the table below:

Table no. 5. Distribution of answers by type of staff

Type of staff	No of employees	No employees%	No of questionnaires	No of questionnaire [%]	No of answers	Rate of response
Physicians	60	26%	43	29%	43	100 %
Nurses	123	53%	87	60%	76	87 %
Other medical staff	10	4%	6	4%	6	100 %
Administrative	40	17%	10	7%	4	40 %
Grand Total	233	100%	146	100%	129	88 %

Figure no. 3. Response rate - distribution by personnel category



In the second stage, we analysed the validity of the answers. Thus, out of a total of 129 answers received to the distributed questionnaires, we invalidated 3 answers based on the criterion "lack of completion characteristic of analysis". Valid response rate is 98%.

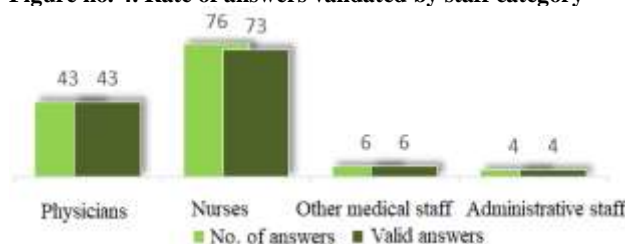
This number of 126 valid answers is distributed by staff categories as follows:

Table no. 6. The rate of valid answers for each category of staff

Type of staff	No of answers	No of validated answers	Rate of valid answers
Physicians	43	43	100%
Nurses	76	73	96%
Other clinical staff	6	6	100%
Administrative	4	4	100%
Grand Total	129	126	98%

Finally, a rate of 86% of validated answers is obtained, which observes the initial structure of the sample as defined, which means that the following results and analyses characterize the study population and are statistically relevant. A graphical representation can be seen in figure no. 4.

Figure no. 4. Rate of answers validated by staff category



An analysis of the valid answers on each of the four defined structural characteristics is given below:

Figure no. 5. Distribution of valid answers by section



Table no. 7. Distribution of valid answers by seniority in the ward

Seniority	Valid answers	[%]
Less than a year	18	14%
Between 1 and 5 years	41	33%
Between 6 and 10 years	16	13%
Between 11 and 15 years old	18	14%
Over 16 years	33	26%
Grand Total	126	100%

Table no. 8. Distribution of valid answers by seniority in hospital

Seniority	Valid answers	[%]
Less than a year	17	13%
Between 1 and 5 years	36	29%
Between 6 and 10 years	15	12%
Between 11 and 15 years old	16	13%
Over 16 years	42	33%
Grand Total	126	100%

The analyses of the distributions on the four defined characteristics show the relevance of the sample following the centralization of all valid answers, so we consider that all the following analyses and results are acceptable and correct and characterize the sample defined by calculation and structured based on hospital staff configuration.

A. General analysis of indicators

From the processing of the received answers, the following average rates of positive answers resulted for each composite indicator. Figure no. 6 shows us these average rates of positive answers as a whole.

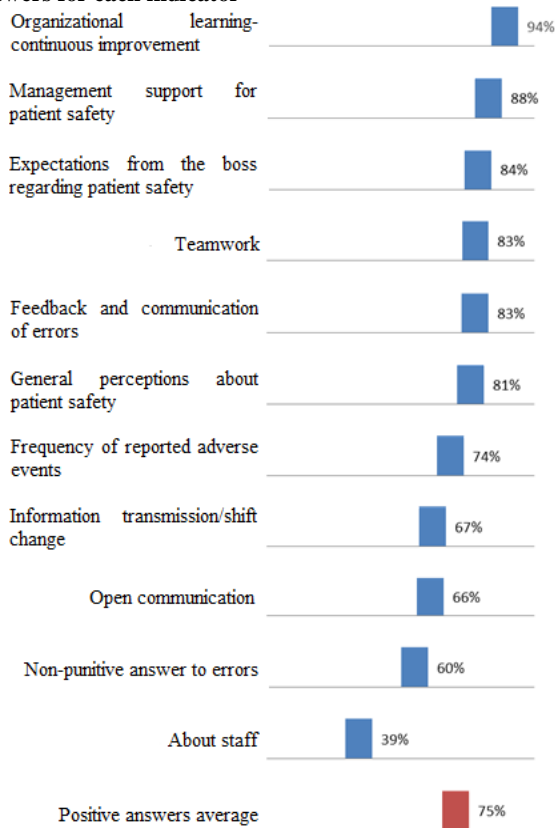
The general average rate is 75% for the analysed data irrespective of the distributions on the considered characteristics, namely: the category of staff, ward and seniority of staff per ward, respectively by hospital. This value shows us that there is information and concern from the part of the staff regarding patient's culture at the level of the analysed hospital unit. Among the composite indicators, the top three with the highest average positive response rates are: "Organizational learning - Continuous improvement", "Management support for patient safety" and "Expectations from the boss on patient safety" with rates of 94%, 88% and 84%, respectively, which shows us that at the level of the studied unit, there are the fundamental elements of a management system oriented towards patient safety, thus there are elements of an organizational culture in this sense (figure no. 6).

On the other hand, if we look at the composite indicators with the lowest positive response rates, we see that according to subjects' perceptions there are the following

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indicators with some deficiencies: “About staff”, “Non-punitive response to errors” and “Open communication”, with rates of 39%, 60% and 66% respectively (figure no. 6). These three indicators need to be improved to increase patient safety and strengthen the organizational culture in this regard. From a global analysis at first glance, there is a rather large discrepancy, the weakest appreciated indicator being About staff (39%), the following being over 60%, although they are below the general average of positive answers.

Figure no. 6. Representation of the average of the positive answers for each indicator



Based on these results analysed taking into account the composite indicators, detailed analyses were made for the three, with the lowest rates compared to the overall average rate of positive responses. The detailed analyses were performed both on each item (statement in the questionnaire) and on each of the characteristics defined for the analysis.

Regarding the “About staff” indicator, the positive response rates for each item are:

The low rate of positive responses is due to the fact that staff generally consider that they work many hours over the normal schedule (14%) and, also, that they often work in “crisis mode” to solve problems (30%).

Table no. 9. Positive response rate for “About staff” items indicator

ID_quest	Contents	Type	Rate
A2	We have enough staff to handle the workload.	P	55 %
A5	The staff in this ward / compartment work more hours than the normal schedule for the best patient care.	N	14 %
A7	We use too much temporary staff, thus affecting patient care.	N	62 %
A14	We work in “crisis mode” trying to do too much, too fast.	N	30 %
Grand Total			39 %

From the study of the answers given to the questionnaire, the next indicator with a low appreciation rate of 60% (vs. average of 75%) is “Non-punitive response to errors”:

Table no. 10. Positive response rate for “Non-punitive response to errors” items indicator

ID_quest	Contents	Type	Rate
A8	The staff believe that the mistakes they made turn against them.	N	52 %
A12	When an event is reported, the cause is the person, not the problem.	N	66 %
A16	The staff worry that the mistakes they make are kept in the staff records.	N	62 %
Grand Total			60 %

Staff believe that errors that may occur or are reported can have unpleasant consequences. This aspect has a negative impact on the reporting of errors that may occur, respectively, on changing the organizational culture in this regard, regarding openness and encouraging reporting, which may be an axis of action to increase patient safety.

The last indicator that deserves to be detailed, because it has a considerably lower than average positive response rate is “Open Communication”:

Table no. 11. Positive response rate for “Open Communication” items indicator

ID_quest	Contents	Type	Rate
C2	Staff can speak freely if they notice anything that may affect the patient's care.	P	95 %
C4	Staff feel free to question the decisions or actions of those with more authority.	P	25 %
C6	Staff are afraid to ask questions when something does not seem right.	N	68 %
Grand Total			66 %

The most unfavourable item is the one that, measured in the valid answers of the respondents, shows that in the organization there are communication problems, a lack of confidence that the staff feel free to communicate openly and question the decisions of those with authority (only 25% have positive answers). Improving communication and encouraging staff to open communication is another major area of action.

The graphical representation of the three analysed indicators is shown in figures no. 6,7.

Regarding the analysis of the answers by categories of staff, it can be seen that the rates of positive answers are quite variable depending on the category of staff to which the respondents belong. Thus, doctors have an average rate of positive responses of 80% (above the general average), while other medical staff are 76% close to the general average, and nurses have the lowest rate of only 72% of positive perception in connection with patient safety. From the point of view of the distribution by the type of ward, we have a better grouping around the general average of 75%, which shows us that the positive perception is uniformly positive and characterizes the population in all departments and wards of the organization.

Analysing the data regarding the distribution on the two characteristics of seniority, it is found the tendency for the personnel with less or very long seniority, to be the highest rate of positive answers, thus the personnel with less than one year and up to 5 years seniority in the ward or hospital, has a rate of 79% to 87% of positive responses, and those over 16 years of age have a rate of 73%. These rates are very good compared to the general average. In contrast, staff with an average length of

service between 6 and 10 years, have a slightly lower rate compared to the average, of only 67%.

The main axis of action aims at the specific structuring of the training according to the personnel category and the structuring of the messages to the management of the specific hospital unit on the seniority groups in the ward / hospital. It is also necessary to act in the future for the cohesion of the team and their homogeneity. All these actions will bring an increase in patient safety.

Finally, two general global indicators were analysed: "General assessment of patient safety" and "Rate of reported adverse events". The analysis of these indicators shows an important discrepancy, which must be understood as the source of origin, namely, while 99% of respondents believe that the patient's safety is "Excellent" and "Very good" (figure no. 6), only 22% of employees reported adverse events that negatively affect patient safety (figure no. 7).

Figure no. 6. General assessment of the patient's safety

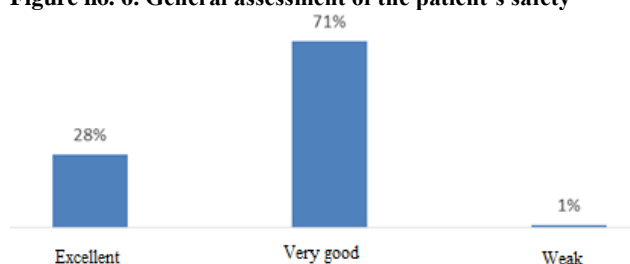
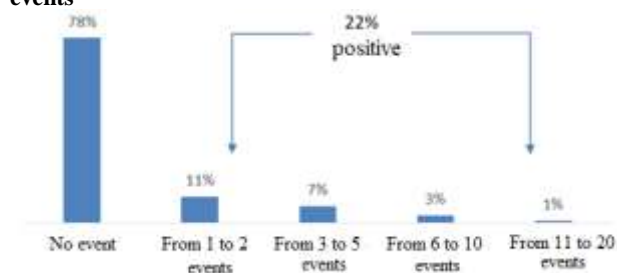


Figure no. 7. Rate of reported adverse events



CONCLUSIONS

The interest for the topic approached in the research was high among the employees, the response rate among physicians and other medical staff being 100%, these categories registering the highest valid response rate.

The analysis of the answers distributions on the four characteristics of the sample selection: type of staff, type of ward, seniority in the ward, seniority in the hospital, shows the relevance of the sample, which ensures the representativeness and validity of the data obtained.

At the level of the studied organization there is a management system and an organizational culture oriented towards patient safety, the proof being the highest average response rates for 6 of the composite indicators (organizational learning - continuous improvement, management support for patient safety, expectations from the boss regarding patient safety, teamwork, feedback and communication of errors, general perceptions about patient safety), over 80%.

Overworked staff and working in "crisis mode", problem solving, open communication and non-punitive response to errors, better reporting of adverse events, are issues that need to be improved to increase patient safety and strengthen organizational culture.

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