

# SAFETY CULTURE AT PRIMARY HEALTHCARE LEVEL: A CROSS-SECTIONAL STUDY AMONG EMPLOYEES WITH A LEADERSHIP ROLE

## KULTURA VARNOSTI NA OSNOVNI RAVNI ZDRAVSTVENEGA VARSTVA: PRESEČNA RAZISKAVA MED ZAPOSLENIMI Z VODSTVENO FUNKCIJO

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### ABSTRACT

**Introduction:** An effective leadership is critical to the development of a safety culture within an organization. With this study, the authors wanted to assess the self-perceived level of safety culture among the employees with a leadership function in the Ljubljana Community Health Centre.

### Keywords:

safety culture,  
primary healthcare,  
organizational culture

**Methods:** This was a cross-sectional study in the largest community health centre in Slovenia. We sent an invitation to all employees with a leadership role (N=211). The Slovenian version of the SAQ - Short Form as a measurement of a safety culture was used. The data on demographic characteristics (gender, age, role, work experience, working hours, and location of work) were also collected. An electronic survey was used.

**Results:** The final sample consisted of 154 (69.7%) participants, out of which 136 (88.3%) were women. The mean age and standard deviation of the sample was 46.2±10.5 years. The average scores for the safety culture domains on a scale from 1 to 5 were 4.1±0.6 for Teamwork Climate, Safety Climate, and Working Conditions and Satisfaction, 3.7±0.5 for Perception of Management, 3.6±0.4 for Communication, and 3.5±0.6 for Stress Recognition.

**Conclusion:** The safety culture among leaders in primary healthcare organizations in Slovenia is perceived as positive. There is also a strong organizational culture. Certain improvements are needed, especially in the field of communication and stress recognition with regards to safety culture.

### IZVLEČEK

**Uvod:** učinkovito vodenje je ključnega pomena za razvoj kulture varnosti v organizaciji. S to raziskavo so avtorji želeli oceniti zaznane raven kulture varnosti med zaposlenimi z vodilno funkcijo v ljubljanskem zdravstvenem domu.

### Ključne besede:

kultura varnosti,  
primarna zdravstvena  
raven, organizacijska  
kultura

**Metode:** to je bila presečna študija v največjem zdravstvenem domu v Sloveniji. Vsem zaposlenim z vodilno vlogo (N = 211) smo poslali povabilo. Za oceno kulture varnosti je bila uporabljena slovenska različica lestvice SAQ - Short Form. Zbrani so bili tudi podatki o demografskih značilnostih (spol, starost, vloga, delovne izkušnje, delovni čas in lokacija dela). Uporabljena je bila elektronska anketa.

**Rezultati:** končni vzorec je sestavljalo 154 (69,7 %) udeležencev, od tega 136 (88,3 %) žensk. Povprečna starost in standardni odklon vzorca sta bila 46,2 ± 10,5 let. Povprečne ocene za področja kulture varnosti na lestvici od 1 do 5 je bilo 4,1 ± 0,6 za timsko delo, klimo varnosti in delovne pogoje ter zadovoljstvo. Za področje dojemanja vodstva je bila ocena 3,7 ± 0,5, za področje komunikacije 3,6 ± 0,4 in za področje prepoznavanje stresa 3,5 ± 0,6 točk.

**Zaključek:** kultura varnosti med vodstvenim kadrom največjega zdravstvenega doma v Sloveniji je pozitivna. Obstaja tudi visoka raven organizacijske kulture. Potrebne so nekatere izboljšave, zlasti na področju komunikacije in prepoznavanja stresa v zvezi s kulturo varnosti.

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## 1 INTRODUCTION

Patient safety culture is part of the patient safety concept and is defined as a product of the attitudes, values, competencies and patterns of behaviour of individuals and groups that determine healthcare in an organisation (1).

The safety of patients at the primary level of healthcare varies considerably from the safety of patients at a secondary or tertiary level. At the primary level, there is a very large amount of contact with patients, which are usually complex interactions (2), and the uncertainty that is typical of work at the primary level is very important (3). So, patient safety here should focus on accepting uncertainty, exploring probabilities, and diminishing danger. It is also important to strive for openness and transparency in the area of patient safety (4).

Although patient safety in primary care has not been explored to the same extent as in secondary and tertiary levels, recently more and more studies are emerging (5, 6). The most common theme within the topic was safety culture. Some studies used a qualitative approach followed by a survey or an audit (7, 8) while others utilized quantitative tools to assess safety culture (9-16). One study also assessed the effect of intervention on the safety culture (17). In general, studies showed that patient safety culture was perceived positively among primary care professionals (12). However, awareness of the safety problems was only raised after getting together and discussing patient safety, therefore, measuring safety culture alone was not enough (11). There seems to be some differences among different health professionals regarding the perception of safety culture (10, 18).

An effective leadership is critical to the development of a safety culture within an organization (19). Competent and thoughtful leaders contribute to improvements in safety and organisational culture. They understand that systemic flaws exist and that each step in a care process has the potential for failure simply because humans make mistakes (20-22). This commitment is needed from all organisational leaders (governing boards and clinical leaders) as well as management. Also, leadership commitment must be expressed through actions observable to employees (23).

To establish a positive safety culture in primary care, the first step is to evaluate the current patient safety culture, which will provide basic understanding to safety-related perceptions of the healthcare providers (5). Therefore, we wanted to assess the self-perceived level of safety culture among the employees in the Ljubljana Community Health Centre. We focused only on the employees with a leadership function and hypothesized that the perception of safety culture would be perceived as positive.

## 2 METHODS

### 2.1 Research Design and Setting

This was a cross-sectional study in the largest community health centre in Slovenia - Community Health Centre Ljubljana. This health centre provides healthcare services for the municipality of Ljubljana, which comprises of around 280,000 people. It consists of eight units, which are located in separate buildings in different parts of Ljubljana. It employs around 1,500 employees of different medical and non-medical backgrounds and has around 2.5 million of patient visits per year.

### 2.2 Participants

We sent an invitation to all employees with a leadership role (N=211). They come from different professional backgrounds (i.e. physicians, dentists, registered nurses, nurse assistants, administrative staff etc.). According to the governance rules in the Community Health Centre Ljubljana, a certain number of employees with a leadership function is appointed in all eight units, such as chief of nurses, chief of physicians, chief of whole units, director of health centre etc. They work mostly within their professional fields, but have a certain amount of their working time dedicated to their leadership tasks.

### 2.3 Instruments

We used the SAQ - Short Form (24), which consists of 36 items that need to be answered on a 5-point Likert scale (1 - disagree strongly, 5 - agree strongly). We were granted permission to use this questionnaire by the University of Texas at Houston-Memorial Hermann, Centre for Health Care Quality and Safety. The permission was given on June 3, 2016. There are six domains in the original SAQ - Short Form: Teamwork Climate (items 1-6), Safety Climate (items 7-13), Job Satisfaction (items 15-19) Stress Recognition (items 20-23), Perceptions of Management (items 24-28), and Working Conditions (items 29-32). Items 14 and 33-36 are not included in any of the factors. A Slovenian version of the SAQ - Short Form showed good reliability and validity characteristics, but with slightly different domains: 1) Perceptions of Management (items 1, 9, 12-14, 24-29, 31); 2) Stress recognition (items 20-23); 3) Teamwork Climate (items 6, 33-35); 4) Communication (2-4, 11, 30, 36); 5) Safety Climate (items 5, 7, 8, 10); 6), Working Conditions and Satisfaction (items 15-19, 32) (25).

We also collected data on demographic characteristics (gender, age, profile, work experience, working period at this location, and location of work).

## 2.4 Data Collection

We collected the data through an electronic survey. The link to the survey was sent to the email addresses of the participants in February 2017. The first reminder was sent after two weeks, and the second two weeks after the first. Participation was confidential, as possible identifiers such as e-mail and IP addresses were removed by the administrative coordinator in the project. It was not possible for the researchers to link the participants to their responses.

## 2.5 Statistical Analysis

In the analysis, the scores of negatively worded items were reversed so that higher scores always indicated a more positive evaluation of the safety culture. For each domain, we calculated its mean score, which ranged from a minimum 1 to a maximum 5 points. The observed variables were safety culture scores on each domain. The explanatory variables were demographic and other characteristics of the participants. Dummy explanatory variables were created for statistical analysis. To detect any significant differences, we used an independent t-test for categorical (dummy) explanatory variables and a Pearson correlation for continuous explanatory variables. A p value of < 0.05 was considered to be statistically significant.

## 3 RESULTS

### 3.1 Demographic Characteristics

The final sample consisted of 154 (69.7%) participants, out of which 136 (88.3% were women). The mean age and standard deviation (SD) of the sample was  $46.2 \pm 10.5$  years. Participants have been working in the current location for an average of  $13.6 \pm 9.8$  years, and their overall working period was  $21.9 \pm 10.5$  years. Other characteristics are presented in Table 1.

### 3.2 Safety Culture

The domains "Teamwork Climate", "Safety Climate", and "Working Conditions and Satisfaction" scored highest and the domain "Stress recognition" scored lowest (Table 2).

Participants from Unit Center scored significantly higher in the domain "Communication" than participants from other units ( $3.7 \pm 0.2$  vs.  $3.5 \pm 0.4$ ,  $p < 0.001$ ). Participants from Administrative Unit scored significantly lower in the domain "Teamwork climate" than participants from other units ( $3.8 \pm 1.8$  vs.  $4.1 \pm 0.6$ ,  $p = 0.001$ ). Other significant differences were not observed.

**Table 1.** Profiles of participants and Community Health Centre units they work in.

Characteristic	Number (%)
<b>Profile</b>	
Physician, dentist	54 (35.1)
Registered nurse	36 (23.4)
Manager	28 (18.2)
Nurse assistant	18 (11.7)
Other clinical staff	16 (10.4)
Administrative staff	2 (1.3)
<b>Community Health Centre unit</b>	
Unit Sentvid	41 (26.6)
Unit Center	24 (15.6)
Unit Vic Rudnik	23 (14.9)
Unit Moste Polje	19 (12.3)
Unit Bezigrad	19 (12.3)
Unit Siska	16 (10.4)
Administrative Unit	8 (5.2)
Unit Emergency services	4 (2.6)

**Table 2.** Safety culture scores.

Characteristic	Number (%)
Perception of management	3.7 (0.5)
Stress recognition	3.5 (0.9)
Teamwork climate	4.1 (0.6)
Communication	3.6 (0.4)
Safety climate	4.1 (0.6)
Working conditions and satisfaction	4.1 (0.6)

## 4 DISCUSSION

This study showed that patient safety culture was, on average, perceived positively by the employees with a leadership function in the largest community health centre in Slovenia.

Previous studies in patient safety culture at the primary healthcare level in Slovenia showed that it was perceived positively but there was still a lot of room for improvement (16). For example, more attention should be devoted to improving team collaboration with a clearer description of professional team roles (18). A study on safety culture in Slovenian hospitals using a different instrument showed that the unit-level dimensions of patient safety were perceived better than the dimensions at the hospital-

level. This study also showed a raising awareness of problems of patient safety among staff (26). This was also confirmed in our study demonstrating that patient safety is universal.

In primary care, providers with different professional backgrounds are involved in the management of patients. A good team leader is very important, not only for an effective team management and function but also for a safety culture. Namely, the role of leadership is critical to facilitate or constrain a positive safety culture. They can crucially affect a positive interdisciplinary action team, and a positive learning culture but, on the other hand, diminish a punitive culture (27). Leaders are in a position to enable a culture of safety (28, 29). Therefore, our study focused only on the employees with a leadership function.

The finding that the participants with a leadership function perceived a safety culture positively can be a good sign, indicating an actual positive safety culture in the organization. However, studies showed that there were differences in the perception of a safety culture between healthcare leaders and staff. Probably, frontline staff may be more aware of actual safety challenges than the leaders (30) and it is possible that, if frontline staff were included in the study, the safety culture would have been perceived less positively.

The perceptions of different domains were relatively homogenous. Some domains, such as Teamwork Climate, Safety Climate, and Working Conditions and Satisfaction were scored slightly higher and some, such as Stress Recognition, slightly lower. Teamwork Climate was perceived positively also by other studies in Slovenia and abroad (10, 16, 18). The domain Stress Recognition includes items through which the employees indicate that they are aware of the fact that fatigue and high workload affect a safety culture in a negative way. In Slovenia, workloads at the primary care level are high (31). But, according to the results of the present study, this is only partly recognized by the leaders as an issue that can affect a safety culture.

The second domain that scored lowest was Communication. This domain covers the items such as the effect of communication on the management of patients and communication about safety issues. This domain was also perceived as low by other studies in Slovenian primary care (16). It seems that this safety culture domain needs improvement.

There were no large differences in a safety culture perception regarding the characteristics of the participants. It is especially important that no differences were observed between different units. The degree to which staff share the perceptions within the same unit is a validity criterion for measurements of organisational

climate (32). The degree of consensus amongst staff in a unit is a measure of the organisational climate's strength (1, 32). Organizational climates with diverging perceptions amongst staff are regarded as weak, with limited power to predict staff practices (33). Since no significant variations were found in the present study, we can say that organisational climate is strong in the Community Health Centre Ljubljana. It also can indicate that leaders act as a unified community with common goals and leadership methods.

Our study has some methodological consideration that we should mention. The response rate was considerably high but we have no information on the non-respondents so this could be a source of a bias. Also, we used a Slovenian version of the SAQ-AV - Short Form, in which domains are slightly different than in the original version so a direct comparison to other studies that used the same questionnaire is limited. We studied only the leaders in one (albeit the largest) primary health organization in Slovenia, so the results cannot be generalized to the whole population. Also, the questionnaire was self-administered so a certain level of social desirability by the respondents must be taken into account, i.e. answering the questions in such a way that would show the situation in a desirable way, not in an actual way.

## 5 CONCLUSIONS

The safety culture among leaders in primary healthcare organizations in Slovenia is perceived as positive. There is also a strong organizational culture. Certain improvements are needed, especially in the field of communication and stress recognition with regards to safety culture. The results could help the management of the healthcare centres to introduce a system approach to patient safety, to tackle the weak points and improve them, to initiate a continuous assessment of safety culture, and to increase awareness of a no-blame culture. Additional studies are needed to determine a safety culture in all employees of the primary healthcare organizations in Slovenia, with a special emphasis on the differences between leaders and other staff.

## CONFLICT OF INTEREST

The authors declare that no conflicts of interest exist.

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## ETHICAL APPROVAL

The study was approved by the Slovenian National Ethics Committee (No. 107/07/16).

## REFERENCES

- Deilkas ET. Patient safety culture - opportunities for healthcare management. Oslo: University of Oslo, 2010.
- Tušek-Bunc K, Petek Ster M, Petek D. Correlation of coronary heart disease patient assessments of chronic illness care and quality of care procedures. *Acta Medico-Biotechnica*. 2018;11:45-53.
- Ivetic V, Poplas-Susic T, Pašič K, Selič P. Beliefs and viewpoints of family medicine physicians on approaches to identify and treat medically unexplained symptoms. *Acta Medico-Biotechnica*. 2016;9:47-57.
- Parker D, Wensing M, Esmail A, Valderas JM. Measurement tools and process indicators of patient safety culture in primary care: a mixed methods study by the LINNEAUS collaboration on patient safety in primary care. *Eur J Gen Pract*. 2015;21(Suppl):26-30. doi: 10.3109/13814788.2015.1043732.
- Lawati MHA, Dennis S, Short SD, Abdulhadi NN. Patient safety and safety culture in primary health care: a systematic review. *BMC Fam Pract*. 2018;19:104. doi: 10.1186/s12875-018-0793-7.
- Verbakel NJ, Langelaan M, Verheij TJ, Wagner C, Zwart DL. Improving patient safety culture in primary care: a systematic review. *J Patient Saf*. 2016;12:152-8. doi: 10.1097/pts.0000000000000075.
- Kirk S, Parker D, Claridge T, Esmail A, Marshall M. Patient safety culture in primary care: developing a theoretical framework for practical use. *Qual Saf Health Care*. 2007;16:313-20. doi: 10.1136/qshc.2006.018366.
- Palacios-Derflingher L, O'Beirne M, Sterling P, Zwicker K, Harding BK, Casebeer A. Dimensions of patient safety culture in family practice. *Health Q*. 2010;13(Spec No):121-7. doi: 10.12927/hcg.2010.21977.
- Zwart DL, Langelaan M, van de Vooren RC, Kuyvenhoven MM, Kalkman CJ, Verheij TJ, et al. Patient safety culture measurement in general practice: clinimetric properties of 'SCOPE'. *BMC Fam Pract*. 2011;12:117. doi: 10.1186/1471-2296-12-117.
- Bondevik GT, Hofoss D, Holm Hansen E, Deilkas ET. Patient safety culture in Norwegian primary care: a study in out-of-hours casualty clinics and GP practices. *Scand J Prim Health Care*. 2014; 32: 132-8. doi: 10.3109/02813432.2014.962791.
- Verbakel NJ, de Bont AA, Verheij TJ, Wagner C, Zwart DL. Improving patient safety culture in general practice: an interview study. *Br J Gen Pract*. 2015;65:e822-8. doi: 10.3399/bjgp15X687865.
- Verbakel NJ, Van Melle M, Langelaan M, Verheij TJ, Wagner C, Zwart DL. Exploring patient safety culture in primary care. *Int J Qual Health Care*. 2014;26:585-91. doi: 10.1093/intqhc/mzu074.
- Al-Khaldi YM. Attitude of primary care physicians toward patient safety in Aseer region, Saudi Arabia. *J Family Community Med*. 2013;20:153-8. doi: 10.4103/2230-8229.121976.
- Tabrizchi N, Sedaghat M. The first study of patient safety culture in Iranian primary health centers. *Acta Med Iran*. 2012;50:505-10.
- Bodur S, Filiz E. A survey on patient safety culture in primary healthcare services in Turkey. *Int J Qual Health Care*. 2009;21:348-55. doi: 10.1093/intqhc/mzp035.
- Klemenc-Ketis Z, Deilkas ET, Hofoss D, Bondevik GT. Patient safety culture in Slovenian out-of-hours primary care clinics. *Zdr Varst*. 2017;56:203-10. doi: 10.1515/sjph-2017-0028.
- Hoffmann B, Muller V, Rochon J, Gondan M, Muller B, Albay Z, et al. Effects of a team-based assessment and intervention on patient safety culture in general practice: an open randomised controlled trial. *BMJ Qual Saf*. 2014;23:35-46. doi: 10.1136/bmjqs-2013-001899.
- Klemenc-Ketis Z, Deilkas ET, Hofoss D, Bondevik GT. Variations in patient safety climate and perceived quality of collaboration between professions in out-of-hours care. *J Multidiscip Healthc*. 2017;10:417-23. doi: 10.2147/jmdh.s149011.
- Ezziane Z, Maruthappu M, Gawn L, Thompson EA, Athanasiou T, Warren OJ. Building effective clinical teams in healthcare. *J Health Organ Manag*. 2012;26:428-36. doi: 10.1108/14777261211251508.
- Feldman SS, Buchalter S, Zink D, Slovensky DJ, Hayes LW. Training leaders for a culture of quality and safety. *Leadersh Health Serv (Bradford, England)*. 2019;32:251-63. doi: 10.1108/lhs-09-2018-0041.
- Clarke JR, Lerner JC, Marella W. The role for leaders of health care organizations in patient safety. *Am J Med Qual*. 2007;22:311-8. doi: 10.1177/1062860607304743.
- Parand A, Dopson S, Vincent C. The role of chief executive officers in a quality improvement : a qualitative study. *BMJ Open*. 2013;3. doi: 10.1136/bmjopen-2012-001731.
- Page A. Keeping patients safe: transforming the work environment of nurses. Washington (DC): National Academies Press, 2004.
- Sexton JB, Helmreich RL, Neilands TB, Rowan K, Vella K, Boyden J, et al. The safety attitudes questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Serv Res*. 2006;3:44. doi: 10.1186/1472-6963-6-44.
- Klemenc-Ketis Z, Makivic I, Poplas-Susic A. Safety culture in the primary health care settings based on workers with a leadership role: the psychometric properties of the Slovenian-language version of the safety attitudes questionnaire - short form. *BMC Health Serv Res*. 2018;18:767. doi: 10.1186/s12913-018-3594-8.
- Robida A. Hospital survey on patient safety culture in Slovenia: a psychometric evaluation. *Int J Qual Health Care*. 2013;25:469-75. doi: 10.1093/intqhc/mzt040.
- Kim YM, Newby-Bennett D. The role of leadership in learning culture and patient safety. *Int J Organ Theor Behav*. 2012;15:151-75.
- Kristensen S, Christensen KB, Jaquet A, Moller Beck C, Sabroe S, Bartels P, et al. Strengthening leadership as a catalyst for enhanced patient safety culture: a repeated cross-sectional experimental study. *BMJ Open*. 2016;6:e010180. doi: 10.1136/bmjopen-2015-010180.
- Lotfi Z, Atashzadeh-Shoorideh F, Mohtashami J, Nasiri M. Relationship between ethical leadership and organisational commitment of nurses with perception of patient safety culture. *J Nurs Manag*. 2018;26:726-34. doi: 10.1111/jonm.12607.
- Vogelsmeier A, Scott-Cawiezell J, Miller B, Griffith S. Influencing leadership perceptions of patient safety through just culture training. *J Nurs Care Qua*. 2010;25:288-94. doi: 10.1097/NCQ.0b013e3181d8e0f2.
- Živčec Kalan G, Petek Ster M, Kersnik J. Determinants of family physicians' workload. *Zdrav Vestn*. 2012;81:461-9.
- Zohar D. Safety climate: conceptual and measurement issues. In: Campbell Quick J, Tetrick L, editors. *Handbook of occupational health psychology*. Washington (DC): American Psychological Association, 2003:123-42.
- Zohar D, Livne Y, Tenne-Gazit O, Admi H, Donchin Y. Healthcare climate: a framework for measuring and improving patient safety. *Crit Care Med*. 2007;35:1312-7. doi: 10.1097/01.Ccm.0000262404.10203.C9.