

# PERCEPTION OF PATIENT SAFETY CULTURE AT THE PRIMARY CARE LEVEL: THE CASE OF THE COMMUNITY HEALTH CENTRE LJUBLJANA

## ZAZNAVANJE KULTURE VARNOSTI PACIENTOV NA PRIMARNI RAVNI ZDRAVSTVENEGA VARSTVA: RAZISKAVA V ZDRAVSTVENEM DOMU LJUBLJANA

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### ABSTRACT

#### Keywords:

Safety culture  
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**Background:** Patient safety is a crucial element of quality healthcare, and endeavours to enhance it are vital for attaining universal health coverage and improving patient outcomes. This study aimed to evaluate the perception of patient safety culture among staff at the Community Health Centre Ljubljana (CHCL).

**Methods:** A cross-sectional study was conducted in December 2022. All CHCL staff (N=1,564) from different professional groups were invited to participate in an anonymous electronic survey using the validated Slovenian version of the "Medical Office Survey on Patient Safety Culture" (MOSPSC). Mean percent positive scores for all items in each composite were calculated.

**Results:** The final sample included 377 participants (response rate, 24.1%), most of whom were women (91.5%, N=345) with different professional profiles. The mean age of the participants was 44.5 years (SD 11.1) with a mean work experience of 20.1 years (SD 12.1). The percentage of positive overall MOSPSC composite scores was 59.6%. A strong patient safety culture perception was identified in the following dimensions: Information exchange with other settings (93.5%), Organisational learning (90.2%), List of patient safety and quality issues (88.1%), Patient care tracking/follow-up (76.2 %) and Teamwork (75.0%). Weak patient safety culture was identified in the dimensions of Work pressure and pace (10.7%), Leadership support for patient safety (27.1%), Communication openness (40.9%), Office processes and standardisation (48.2%) and Overall ratings on quality and patient safety (49.4%).

**Conclusions:** CHCL leadership should address weaknesses, redesign processes, and implement strategies to reduce patient safety incidents. Establishing a just culture that encourages employees to report errors fosters transparency and facilitates learning from errors.

### IZVLEČEK

#### Ključne besede:

kultura varnosti  
varnost bolnikov  
kakovostno  
zdravstveno varstvo  
primarno zdravstveno  
varstvo  
promocija zdravja

**Izhodišča:** Za kakovostno zdravstveno varstvo je ključna varnost pacientov in prizadevanja za njeno izboljšanje so bistvenega pomena za doseganje splošnega zdravja in izboljšanje izidov za paciente. V Sloveniji kultura varnosti pacientov še ni sistemsko urejena. Redno ocenjevanje kulture varnosti je pomembno za opredelitev področij, kjer so potrebne izboljšave in za zagotovitev najboljše možne oskrbe pacientom. Namen raziskave je bil oceniti kulturo varnosti pacientov med zaposlenimi v Zdravstvenem domu Ljubljana (ZDL).

**Metode:** V decembru 2022 je bila izvedena presečna raziskava, v katero so bili povabljeni vsi zaposleni v ZDL (n = 1564) iz različnih poklicnih skupin. V anonimni elektronski anketi so izpolnili slovensko različico "Medical Office Survey on Patient Safety Culture" (MOSPSC). Za vsako dimenzijo varnosti je bil v skladu z navodili izračunan povprečni odstotek pozitivnih ocen.

**Rezultati:** Končni vzorec je vključeval 377 udeležencev (24,1 % odzivnost) različnih poklicnih profilov, med katerimi je bilo 345 (91,5 %) žensk. Njihova povprečna starost je bila 44,5 leta (SD 11,1), s povprečno delovno dobo 20,1 leta (SD 12,1). Delež pozitivnih ocen vseh MOSPSC dimenzij je znašal 59,6 %. Kultura varnosti je bila identificirana kot močna v 5 dimenzijah: Izmenjava informacij z drugimi okolji (93,5 %), Organizacijsko učenje (90,2 %), Seznam težav glede varnosti in kakovosti bolnikov (88,1 %), Sledenje/nadaljnja oskrba bolnikov (76,2 %) in Timsko delo (75,0 %). Šibka kultura varnosti je bila prepoznana v naslednjih dimenzijah: Delovni pritisk in tempo (10,7 %), Podpora vodstva za varnost bolnikov (27,1 %), Odprtost komunikacije (40,9 %), Pisarniški procesi in standardizacija (48,2 %) ter Skupna ocena kakovosti in varnosti bolnikov (49,4 %). Ugotovljene so bile razlike med dimenzijami MOSPSC in posameznimi enotami ZDL, starostjo zaposlenih, različnimi poklicnimi profili in trajanjem zaposlitve.

**Zaključek:** Zaznava kulture varnosti pacientov v ZDL je bila ocenjena kot pozitivna v petih dimenzijah MOSPSC lestvice, vendar so bila prepoznana tudi šibka področja, ki potrebujejo izboljšave. Pomembno je, da vodstvo ZDL obravnava ta vprašanja, preoblikuje procese in izvaja strategije za zmanjšanje števila incidentov, povezanih z varnostjo pacientov. Potrebno je spodbujati pravično kulturo in ustvariti okolje, kjer bodo zaposleni brez zadržkov poročali o potrebnih izboljšavah, storjenih napakah in se iz njih učili. Nenehno prizadevanje, spremljanje in izboljševanje prispevajo k zagotavljanju varne, učinkovite in kakovostne oskrbe pacientov.

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## 1 INTRODUCTION

Patient safety is a critical component of quality healthcare, and efforts to improve it are essential for achieving universal health coverage and improving patient outcomes. The World Health Organization defines patient safety as a “framework of organised activities that creates cultures, processes, procedures, behaviours, technologies and environments in healthcare that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make errors less likely and reduce impact of harm when it does occur” (1).

Prioritising patient safety in healthcare settings has gained greater recognition in recent years (2). Achieving optimal patient safety requires a safety culture that promotes open communication, transparency, and continuous learning (1). It entails a shared understanding that safety is a top priority and everyone’s responsibility (3), necessitating systems that encourage error reporting, root cause analysis, and effective preventive strategies (1, 3).

Patient safety in primary healthcare in Slovenia varies significantly from secondary to tertiary levels. Acting as a gatekeeper to hospital care, primary care is accessible and involves frequent patient contact (4, 5) with diverse health issues. Health providers are often required to make complex decisions with limited information (6). Hence, it is crucial to be comfortable with uncertainty, explore probabilities, and minimise risks (7).

Patient safety culture remains unregulated in Slovenia, and thus there is a need for more quality assessment with regard to enhancing the quality of work in this sector. Unfortunately, punitive measures and fault-based liability persist (8). As Slovenia increasingly focuses on “value-based healthcare” to optimise patient treatment outcomes, a stakeholder expert panel has been formed to develop a roadmap for its implementation (9).

The safety culture in Slovenian out-of-hours primary healthcare settings was recently assessed, with the results showing the need to standardise working conditions (10, 11). While leaders in Slovenian primary healthcare organisations generally express positive perceptions of safety culture, there remains room for improvement in communication and stress recognition (12). The only study evaluating the perception of patient safety culture among employees at the Community Health Centre Ljubljana (CHCL) was conducted in 2017, and this revealed an overall good patient safety culture. However, variations between professions were noted, and certain areas require further evaluation (4).

Regularly assessing patient safety culture is crucial for identifying areas of improvement and ensuring optimal patient care (13, 14). This study thus aimed to evaluate employee perceptions of patient safety culture at the

CHCL and explore the relationships among different dimensions of patient safety and the sociodemographic characteristics of the study participants.

## 2 MATERIALS AND METHODS

### 2.1 Research design and setting

We conducted a cross-sectional study at CHCL, the largest community healthcare centre in Slovenia, which provides health services for the Municipality of Ljubljana with over 450,000 registered patients. The CHCL consists of eight units, located in various parts of Ljubljana. In 2022, there were 1,564 employees from different areas of healthcare. The study was approved by the Slovenian National Medical Ethics Committee (No. 107/07/16).

### 2.2 Participants

We invited all employees (N=1,564) of the CHCL to participate in the study (physicians, dentists, healthcare assistants, registered nurses, management, administrative or clerical staff, clinical support staff and employees working at other positions).

### 2.3 Tool

We utilised the validated Slovenian version of MOSPSC (15), developed by the Agency for Healthcare Research and Quality (16). This tool facilitates the assessment of patient safety culture at the primary healthcare level, the detection of possible differences, better understanding with regard to the safety of a particular organisation, and evaluating the impact of specific interventions for improving patient safety culture (13, 16, 17).

The structure of MOSPSC is outlined in Table 1. Domains A and B were answered according to a 6-point frequency scale from “daily” to “not in the past 12 months”. Domain C consists of four dimensions and domain D of three dimensions, both answered according to a 5-point Likert scale. Domain E included four items on leadership support, answered only by individuals without a leadership function, using a 5-point Likert scale. Those with a leadership function were required to respond to Domain F. Domain G describes overall ratings in five areas of healthcare quality (patient-centred, effective, timely, efficient, and equitable) and an overall rating on patient safety, using a 5-point Likert scale. All 52 items also included the response option “Does not apply” or “I don’t know” (16, 18). Finally, data on sociodemographic characteristics (gender, age, function, work experience, working hours, and location of work) were collected.

**Table 1.** Structure of the MOSPSC tool (16).

DOMAIN	DIMENSION
A	List of patient safety and quality issues
B	Information exchange with other settings
C	Teamwork
	Work pressure and pace
	Staff training
	Office processes and standardisation
D	Communication openness
	Patient care tracking/follow-up
	Communication about error
E	Leadership support for patient safety
F	Organisational learning
	Overall perceptions of patient safety and quality
G	Overall ratings on quality
	Overall rating on patient safety

## 2.4 Data collection

The survey was completed electronically, and the link was sent to the participants' email addresses in December 2022. A reminder was sent after two weeks. Participation was anonymous, as possible identifiers such as email and IP address were removed by the administrative coordinator of the project. It was not possible for the researchers to link the participants to their responses.

## 2.5 Data analysis

We performed a univariate analysis with frequency distributions and descriptive statistics. The MOSPSC analysis was performed according to the AHRQ recommendations. Responses with the highest scores on the Likert scale indicate a more positive patient safety culture evaluation at each item level. Negatively worded items (C3, C6, C8, C10, C12, C14, D4, D7, D10, E1, E2, E4, F3, F4, and F6) were reversed so that higher scores always indicated a more positive evaluation of the safety culture. "Does not apply" or "I don't know" responses were treated as missing data. A positive response was considered when the response score was equal to or above 4 on any 5-point or 6-point Likert scale (16). We calculated a percent positive score for each of the composites and the overall MOSPSC composite percent positive score using the mean percent score of positive responses of all dimensions. A positive patient safety culture was considered when the composite percent positive score was above 60%. The patient safety culture was considered strong when composite percent positive score was equal to or greater than 75% and identified as weak when composite percent positive score was less than 50%, suggesting the need for improvements (16).

For the statistical analysis, the composite percent positive scores are expressed as the mean  $\pm$  standard deviation (SD) and median and interquartile range (25-75%). According to the Kolmogorov-Smirnov test with Lilliefors correction, the overall MOSPSC composite percent positive score had a normal distribution, and all composite percent positive scores of MOSPSC dimensions had a non-normal distribution. The association between the composite percent positive scores of the MOSPSC dimensions and the participants' gender or professional profile was evaluated using the Mann-Whitney U test, resulting in the calculation of the U value. Additionally, the Kruskal-Wallis test was employed to compare the medians of the composite percent positive scores of the MOSPSC dimensions across various sociodemographic characteristics of the employees, yielding the H value. A p-value of  $<0.05$  was considered statistically significant.

## 3 RESULTS

### 3.1 Demographic characteristics

The final sample comprised 377 participants who returned eligible and complete surveys, resulting in a response rate of 24.1%. The majority were women (91.5%, N=345). Participants had a mean age of 44.5 years (SD 11.1) and a mean work experience of 20.1 years (SD 12.1), with 78.5% having more than 16 years of experience. On average, the participants worked 37.1 hours per week (SD 10.1) and the average length of work in the current medical office location was 12.4 years (SD 10.9).

**Table 2.** Sociodemographic characteristics of the participants.

CHARACTERISTIC	DESCRIPTIVES
Age (years), mean (SD)	44.5 (11.1)
Age group (years), n (%)	
<25	14 (1.8)
26-40	135 (17.8)
41-55	142 (18.7)
>56	86 (11.3)
Male	32 (8.5)
Female	345 (91.5)
Profile, n (%)	
Physician, dentist	84 (21.8)
Registered nurse	102 (26.5)
Management	12 (3.1)
Administrative or clerical staff	12 (3.1)
Healthcare assistants	97 (25.2)
Other clinical staff	47 (12.2)
Other position	31 (8.1)
Health centre unit, n (%)	
Center	79 (21.0)
Moste-Polje	85 (22.5)

CHARACTERISTIC	DESCRIPTIVES
Management	5 (1.3)
Šentvid	12 (3.2)
Vič-Rudnik	82 (21.8)
Bežigrad	56 (14.9)
Emergency Care Unit	6 (1.6)
Šiška	52 (13.8)
<b>Work experience</b> (years), n (%)	
<4	13 (3.4)
4-7	25 (6.6)
8-15	43 (11.4)
>16	296 (78.5)

Legend: SD - standard deviation

### 3.2 Attitudes to patient safety culture

Table 3 shows the composite percent positive scores of the MOSPSC and its dimensions. Strong patient safety culture was detected in five dimensions: Information exchange with other settings (93.5%), Organisational learning (90.2%), List of patient safety and quality issues (88.1%), Patient care tracking/follow-up (76.2 %) and Teamwork (75.0%). Weak patient safety culture was identified in the following five dimensions: Work pressure and pace (10.7%), Leadership support for patient safety (27.1%), Communication openness (40.9%), Office processes and standardisation (48.2%) and Overall ratings on quality and patient safety (49.4%). The overall MOSPSC composite percent positive score was 59.6%.

Table 4 shows the percentage of positive scores for items of Domain G. The percentage of positive responses on Overall ratings on quality was 52.8% and that for Overall rating on patient safety was 32.6%, with the composite percent positive score of 49.4%. Regarding the items of the G1 sub-domain, only Equitable showed a positive safety culture, with 69.8%.

**Table 3.** Composite percent positive scores of the Medical Office Survey on Patient Safety Control (MOSPSC) and its dimensions.

MOSPSC DIMENSIONS	Mean (SD)	Median (IQ 25-75)
List of patient safety and quality issues, %	88.1 (18.9)	100.0 (77.8-100.0)
Information exchange with other settings, %	93.5 (18.8)	100.0 (100.0-100.0)
Teamwork, %	75.0 (29.7)	75.0 (50.0-100.0)
Work pressure and pace, %	10.7 (20.3)	0.0 (0.0-25.0)
Staff training, %	51.6 (36.7)	66.7 (33.3-66.7)
Office processes and standardisation, %	48.2 (28.2)	50.0 (25.0-72.0)
Communication openness, %	40.9 (33.7)	25.0 (0.0-75.0)
Patient care tracking/follow-up, %	76.2 (28.6)	75.0 (50.0-100.0)
Communication about error, %	58.3 (31.6)	75.0 (25.0-75.0)
Leadership support for patient safety, %	27.1 (31.2)	25.0 (0.0-50.0)
Organisational learning, %	90.2 (22.9)	100.0 (100.0-100.0)
Overall perceptions of patient safety and quality, %	70.1 (24.2)	75.0 (50.0-100.)
Overall ratings on quality and patient safety, %	49.4 (38.3)	50.0 (16.7-83.3)
<b>Overall MOSPSC composite percent positive score, %</b>	<b>59.6 (15.7)</b>	<b>75.0 (50.0-100.0)</b>

Legend: SD - standard deviation; IQ 25-75 - 25%-75% interquartile range

**Table 4.** Percentage of positive responses on Overall ratings on quality and patient safety.

DOMAIN G	ITEMS	Mean (SD)	Median (IQ 25-75)
G1: Overall ratings on quality	G1A: Patient-centred, %	48.4 (50.0)	0.0 (0.0-100.)
	G1B: Effective, %	51.7 (50.0)	100.0 (0.0-100.0)
	G1C: Timely, %	47.1 (50.0)	0.0 (0.0-100.0)
	G1D: Efficient, %	47.1 (50.0)	0.0 (0.0-100.0)
	G1E: Equitable, %	69.8 (46.0)	100.0 (0.0-100.0)
G1: Average overall rating on quality, %		52.8 (40.3)	60.0 (0.0-100.0)
G2: Overall rating on patient safety	G2, %	32.6 (46.9)	0.0 (0.0-100.0)
<b>Overall ratings on quality and patient safety, %</b>		<b>49.4 (38.3)</b>	<b>50.0 (16.7-83.3)</b>

Legend: SD - standard deviation; IQ 25-75 - 25%-75% interquartile range

### 3.3 Associations between the MOSPSC dimensions and the employees' characteristics

Bivariate analyses revealed relationships among the various sociodemographic characteristics of participants and MOSPSC dimensions. No differences were found between gender and the assessment of MOSPSC dimensions. However, significant variations were observed among different age groups in their perception of patient safety culture dimensions.

Employees aged 55 and older rated Staff training ( $H=13.801$ ;  $p=0.003$ ), Office processes and standardisation ( $H=12.287$ ;  $p=0.006$ ) and Patient care tracking/follow-up ( $H=10.451$ ;  $p=0.015$ ) higher than their younger co-workers. Management workers aged over 41 evaluated Organisational learning ( $H=7.944$ ;  $p=0.019$ ) more positively than their younger colleagues. Participants with less than three years of employment rated Staff training ( $H=13.455$ ;  $p=0.004$ ) and Patient care tracking/follow-up ( $H=19.333$ ;  $p<0.001$ ) significantly lower than others. Those employed more than 16 years of employment assessed Office processes and standardisation better than their co-workers ( $H=9.963$ ;  $p=0.019$ ). Leadership support received a higher assessment from those with more than eight years of work experience ( $H=8.440$ ;  $p=0.038$ ). No significant

differences were found between the number of weekly working hours and the employees' evaluation of MOSPSC dimensions. Teamwork was the only dimension assessed differently across CHCL units, with the Emergency care unit and management personnel providing the highest scores ( $H=15.441$ ,  $p=0.031$ ).

Table 5 illustrates the relationship between the composite percent positive score of the MOSPSC dimensions and professional profiles. Physicians rated Office processes and standardisation lower than employees in other positions ( $U=8942.0$ ;  $p=0.037$ ), whereas management staff rated this dimension higher than their co-workers ( $U=2963.0$ ;  $p=0.004$ ). Physicians also evaluated Patient care tracking/follow-up with lower score compared to others ( $U=9362.0$ ;  $p=0.049$ ). Management personnel evaluated Staff training ( $U=2870.5$ ;  $p=0.014$ ), Office processes and standardisation ( $U=2963.0$ ;  $p=0.003$ ), Communication openness ( $U=1715.5$ ;  $p=0.043$ ) and Communication about error ( $U=1592.0$ ;  $p=0.043$ ) higher than other employees. Other clinical staff (e.g. physiotherapist, laboratory assistant, etc.) rated Communication openness ( $U=2269.5$ ;  $p=0.011$ ) and Leadership support for patient safety ( $U=2074.5$ ;  $p=0.002$ ) lower than employees in other positions.

**Table 5.** Analysis of composite percent positive score of the MOSPSC dimensions based on different professional profiles.

MOSPSC dimensions	Physician, dentist (n=84)	Registered nurse (n=102)	Management (n=12)	Administrative or clerical staff (n=12)	Healthcare assistants (n=97)	Other clinical staff (n=47)
<b>List of patient safety and quality issues, %</b>						
Mean (SD)	85.6 (24.7)	88.9 (17.0)	96.3 (6.4)	/	90.8 (13.8)	100 (0.0)
Median (IQ 25-75)	80.0 (70.0-100.0)	85.0 (80.0-100.0)	100.0 (90.0-100.0)	/	90.0 (90.0-100.0)	100.0 (100.0-100.0)
<b>Information exchange with other settings, %</b>						
Mean (SD)	94.2 (17.4)	95.0 (16.8)	100 (0.0)	100 (0.0)	92.6 (20.4)	91.1 (20.3)
Median (IQ 25-75)	95.0 (90.0-100.0)	95.0 (90.0-100.0)	100.0 (100.0-100.0)	100.0 (100.0-100.0)	100.0 (80.0-100.0)	100.0 (75.0-100.0)
<b>Teamwork, %</b>						
Mean (SD)	76.8 (29.3)	75.8 (29.2)	85 (24.1)	87.5 (25.0)	70.7 (32.7)	68.6 (31.2)
Median (IQ 25-75)	70.0 (60.0-87.5)	70.0 (60.0-82.5)	100.0 (75.0-100.0)	100.0 (75.0-100.0)	70.0 (50.0-87.5)	75.0 (50.0-100.0)
<b>Work pressure and pace, %</b>						
Mean (SD)	8.1 (18.8)	11.2 (19.0)	12.5 (13.4)	37.5 (53.0)	8.3 (16.8)	18.1 (29.0)
Median (IQ 25-75)	0.0 (0.0-33.3)	15.0 (0.0-25.0)	0.0 (0.0-33.3)	30.0 (25.0-47.5)	0.0 (0.0-33.3)	25.0 (25.0-25.0)
<b>Staff training, %</b>						
Mean (SD)	43.8 (40.0)	50.5 (36.7)	77.8 (29.6)	38.1 (35.6)	50.2 (36.0)	48.8 (30.0)
Median (IQ 25-75), U value if p-value <0.05	50.0 (0.0-75.0), (U=9362.0; p=0.019)	50.0 (25.0-75.0)	75.0 (60-100.0), (U=2870.5; p=0.014)	25.0 (25.0-75.0)	50.0 (25.0-87.5)	50.0 (25.0-80.0)

MOSPSC dimensions	Physician, dentist (n=84)	Registered nurse (n=102)	Management (n=12)	Administrative or clerical staff (n=12)	Healthcare assistants (n=97)	Other clinical staff (n=47)
<b>Office processes and standardisation, %</b>						
Mean (SD)	43.4 (26.1)	49.7 (28.9)	72.9 (24.9)	55.0 (41.1)	47.8 (25.9)	50.0 (27.1)
Median (IQ 25-75), U value if p-value <0.05	37.5 (20.0-80.0), (U=8942.0; p=0.037)	50.0 (33.3-80.0)	75.0 (80.0-100.0), (U=2963.0; p=0.003)	75.0 (50.0-75.0)	50.0 (25.0-75.0)	50.0 (33.3-66.7)
<b>Communication openness, %</b>						
Mean (SD)	52.9 (31.0)	34.1 (33.3)	63.9 (35.6)	33.3 (28.9)	37.3 (31.6)	25.0 (32.3)
Median (IQ 25-75), U value if p-value <0.05	62.5 (25.0-75.0), (U=9542.5; p<0.01)	25.0 (0.0-50.0)	75.0 (50.0-100.0), (U=1715.5; p=0.043)	25.0 (0.0-50.0)	25.0 (0.0-50.0)	25.0(10.0-50.0), (U=2269.5; p=0.011)
<b>Patient care tracking/ follow-up, %</b>						
Mean (SD)	70.8 (31.1)	77.7 (27.7)	68.8 (23.9)	/	80.3 (26.9)	70.5 (36.8)
Median (IQ 25-75), U value if p-value <0.05	75.0 (75.0-100.0), (U=3937.5; p=0.049)	75.0 (75.0-100.0)	75.0 (50.0-100.0)	/	75.0 (75.0-100.0)	70.0 (60.0-82.5)
<b>Communication about error, %</b>						
Mean (SD)	56.2 (32.2)	56.9 (32.0)	87.5 (18.9)	75.0 (0.0)	58.6 (28.0)	58.8 (30.6)
Median (IQ 25-75), U value if p-value <0.05	50.0 (50.0-75.0)	50.0 (50.0-75.0)	100.0 (75.0-100.0), (U=1592.0; p=0.043)	80.0 (75.0-100.0)	50.0 (25.0-75.0)	50.0 (25.0-75.0)
<b>Leadership support for patient safety, %</b>						
Mean (SD)	31.5 (32.6)	28.7 (28.9)	50.0 (25.0)	58.3 (52.0)	27.9 (32.8)	12.5 (24.7)
Median (IQ 25-75), U value if p-value <0.05	25.0 (0.0-50.0)	33.3 (0.0-33.3)	50.0 (25.0-75.0)	50.0 (50.0-100.0)	25.0 (0.0-50.0)	0.0 (0.0-33.3), (U=2074.5; p=0.002)
<b>Organisational learning, %</b>						
Mean (SD)	66.7 (38.4)	/	100 (0.0)	/	87.2 (25.6)	/
Median (IQ 25-75), U value if p-value <0.05	75.0 (50.0-100.0)	/	100.0 (100.0-100.0)	/	100.0 (75.0-100.0)	/
<b>/Overall perceptions of patient safety and quality, %</b>						
Mean (SD)	62.5 (32.2)	/	75.0 (25.0)	/	58.3 (14.4)	/
Median (IQ 25-75), U value if p-value <0.05	66.7 (33.3-100.0)	/	66.7 (33.3-100.0)	/	50.0 (50.0-75.0)	/
<b>/Overall ratings on quality and patient safety, %</b>						
Mean (SD)	53.4 (36.3)	46.4 (39.8)	52.8 (33.2)	20.8 (34.9)	47.6 (40.4)	56.0 (34.3)
Median (IQ 25-75), U value if p-value <0.05	66.7 (33.3-100.0)	50.0 (33.3-66.7)	50.0 (33.3- 100.0)	20.0 (0.0-50.0), (U=1260.5; p=0.009)	50.0 (33.3- 66.7)	66.7 (33.3-66.7)

Legend: SD - standard deviation; IQ 25-75 - 25%-75% interquartile range; U - value in the Mann-Whitney U test if p-value <0.05

#### 4 DISCUSSION

This study provides valuable insights into the perception of safety culture at CHCL, highlighting areas that require attention to enhance patient safety. While five dimensions of MOSPSC are identified as strong (Information exchange with other settings, Organisational learning, List of patient safety and quality issues, Patient care tracking/follow-up, and Teamwork), there are still areas in need of improvement, namely Work pressure and pace, Leadership support for patient safety, Communication openness, Office processes and standardisation, and Overall ratings on quality and patient safety. Additionally, the research indicates variations in the MOSPSC domains based on CHCL's individual units, employee age, different professional profiles, and length of employment.

The present study found no significant relationship between any of the safety culture composites and gender, similar to a study in Greece (19). In contrast, Polish (20), Spanish (21) and Slovenian (4) studies revealed that women rated certain domains higher than men. Our study showed a positive relation between seniority and responses referring to Staff training, Office processes and standardisation and Patient care tracking/follow-up. A study in Spain also showed the best perception of safety culture was among respondents 56 to 69 years old (21). We found differences in the patient safety culture among the professional profiles and so did other studies (4, 21-23).

Information exchange with other settings (93.5%) received the highest score, indicating effective communication and collaboration. This is an essential component of a strong patient culture in healthcare, as it enables healthcare providers to share important patient information and coordinate care across different settings (16). Teamwork (75.0%) and Organisational learning (90.2%) were also among the highest rated MOSPSC dimensions which is consistent with studies from Spain (21), Brazil (24), Yemen (25), Iran (26), and Poland (20). These findings highlight the importance of comprehensive primary care in promoting and strengthening teamwork, as multi-professional healthcare stakeholders are involved in managing patients (10). Moreover, this dimension is essential because it influences the health professionals' satisfaction and participation, and promotes personal and professional well-being (24). In addition, the emphasis on organisational learning is also an important aspect of promoting quality and safety. Through ongoing evaluation and improvement of healthcare practices, healthcare professionals can continuously learn and adapt to changing patients' needs and healthcare environments (21).

The dimension List of patient safety and quality issues considers daily tasks such as access to care, patient identification, accessibility of medical records, medical equipment, medication and diagnostics (16), and these

were assessed as having a strong safety culture (88.1%). This dimension was the highest scoring for all professional categories in the Spanish study (21). A strong safety culture was also evident in the Patient care tracking/follow-up dimension (76.2%), especially when compared to two Brazilian studies (56.1%) (23) and (60.1%) (24) and a Yemeni study (52%) (26). This dimension ensures that patients receive timely and appropriate care (17). In our study, doctors assessed it worse ( $p=0.049$ ) than registered nurses and healthcare assistants, and it is essential to identify the reasons for this discrepancy, which may involve a lack of communication and coordination among healthcare providers.

We identified a weak safety culture in Work pressure and pace (10.7%) and Leadership support for patients' safety (27.1%), with the lowest scores. Notably, the dimension of Work pressure and pace is a significant concern for patient safety in primary care, consistently associated with low scores across various studies (4, 20, 21, 24, 25, 27). Research highlights challenges in primary care settings, emphasising issues such as inadequate staffing levels to manage patient loads (4, 14, 26, 27). Healthcare professionals in CHCL gave the lowest scores for this dimension, aligning with the shortage of personnel and high workload among family medicine doctors (8) and nurses in Slovenia, with negative impacts on healthcare quality and safety (28). Understanding and addressing factors influencing workload is crucial for developing interventions to improve efficiency, reduce work pace, and prevent burnout (17, 27). For the sustainability of the Slovenian healthcare system it is essential to transfer health competences and responsibility from healthcare professionals to empowered patients (8, 29). To this end, CHCL recently introduced a model of peer support with trained lay individuals who are CHCL's volunteers and ambassadors, with the aim of empowering patients, family members and informal caregivers in the local community (29).

In the Overall ratings on quality and patient safety dimension (49.4%), administrative staff scored significantly lower than employees in other profiles, aligning with Hickner's et al. study (17). Continuous education and training are instrumental in improving the skills and knowledge of all employees (14). Regarding the overall quality assessment, Equitability (69.8%) obtained the highest score. This can be attributed to the CHCL's pivotal role as Slovenia's largest primary health centre, in promoting health equity and reducing disparities. By addressing social determinants, it can enhance the health and well-being of its diverse population.

While the overall MOSPSC composite percent positive score of 59.6% falls below the threshold for a positive assessment, it surpasses the observed scores in other primary healthcare settings (23, 24). In contrast, studies in Poland (20), Yemen (25), Iran (26), and Greece (19)

reported positive overall MOSPSC composite percent positive scores. Nonetheless, CHCL has demonstrated ongoing efforts over the years to enhance patient safety culture and care quality. This commitment is further underscored by its recent participation in the OECD initiative, focusing on the outcomes and experiences of patients receiving care in family medicine practices (30).

A notable strength of this article could be in its chronological consistency, employing the same methodology to assess the environment at CHCL over time. In contrast with the one prior study at CHCL in 2017, where 37.3% of the respondents reported a positive score for the Overall ratings on quality and patient safety dimension (4), the current result of 49.4% is promising. However, it must be interpreted carefully, given our study's low response rate of only 24.1%, compared to 67.8% in the 2017 study (4).

However, several limitations of this study should be acknowledged. The CHCL represents just one of numerous health centres in Slovenia, and the sample may not accurately reflect the diversity of Slovenian primary healthcare. Additionally, the findings may not be generalisable to the entire CHCL, given the study's low response rate of 24.1%, possibly indicating organisational or leadership culture issues. The participants might not have felt entirely comfortable expressing safety concerns, despite confidentiality assurances. Those who chose to participate may also have had a heightened interest or knowledge about the topic, introducing potential bias. Encouraging healthcare professionals to identify and report errors without fear or blame is crucial, fostering a shift from an accountability to a just culture, focused on learning to prevent errors (21, 31). As most respondents were registered nurses, healthcare assistants and physicians, the results did not adequately reflect the perceptions of management and administrative staff. This aligns with the common misconception that only healthcare staff bear responsibility for patient safety and incidents. As such, delving into the reasons for the limited participation of other professional groups is crucial. A thorough understanding of the barriers these groups face in this regard can guide the development of more effective strategies to engage them in research.

Additionally, it is important to note a limitation related to the MOSPSC's validation, which originally focused on participants in leadership positions (15). Further psychometric evaluation is necessary, considering the diverse roles within our participant population. Moreover, not using open-ended questions may limit understanding healthcare professionals' perceptions of safety culture (24), emphasising the need for a combined quantitative and qualitative approach. Given these limitations, it is crucial to interpret the study results carefully.

## 5 CONCLUSIONS

This study offers insights into the perception of the safety culture at CHCL, pinpointing areas for attention to further enhance patient safety. Although five dimensions of the MOSPSC were identified as strong, there are still areas needing improvement. It is crucial for CHCL leadership to address these issues, redesign processes, and implement improvement strategies that reduce patient safety incidents. Fostering a just culture within the organisation is imperative with regard to enhancing future participation rates, where employees are comfortable reporting errors, learning from them, and promoting transparency. Continuous effort, monitoring and improvement can ultimately contribute to the delivery of safe, effective, and high-quality patient care.

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## CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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## ETHICAL APPROVAL

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

## AVAILABILITY OF DATA AND MATERIALS

All data and materials used in this study are available upon reasonable request.

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