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ORIGINAL PAPER

Safety culture in Slovakian long-term care facilities: a cross-sectional study

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Abstract

Aim: The objective of this study was to examine healthcare professionals' perceptions of patient safety culture in long-term care facilities in Slovakia. *Design:* A quantitative descriptive cross-sectional study. *Methods:* The research sample included 161 healthcare professionals from 12 long-term care facilities in Slovakia. Empirical data were collected from December 2023 to February 2024 using the Nursing Home Survey on Patient Safety Culture (NHSPSC). *Results:* Respondents rated the safety culture highest in the dimensions of Feedback and Communication About Incidents (72%) and Overall Perceptions of Resident Safety (69%) according to the NHSPSC. In contrast, the lowest ratings were for Staffing (36%), Nonpunitive Response to Mistakes (38%), and Compliance with Procedures (40%). Analysis revealed statistically significant associations between degree of patient safety, all dimensions of safety culture, and overall job satisfaction ($p < 0.05$). Patient safety ratings were influenced by the number of patients per shift and healthcare professionals' intentions to leave their jobs. *Conclusion:* Patient safety culture significantly influences the level of safety experienced by patients residing in long-term care facilities in Slovakia. Assessment of this culture helps identify areas for improvement and raises awareness of safety among healthcare professionals.

Keywords: healthcare professionals, long-term care facilities, Nursing Home Survey on Patient Safety Culture, patient, safety culture.

Introduction

Patient safety is an essential element of professional healthcare practice (World Health Organization, 2011). As stated by the AHRQ – Agency for Healthcare Research and Quality (AHRQ, 2008), it involves a coordinated approach aimed at preventing harm to patients throughout the healthcare delivery process.

Creating and maintaining a culture of safety is specified as the collective product of individual and group values, attitudes, perceptions, competencies, and behaviors that shape an organization's commitment to health and safety, which has been shown to successfully improve patient safety outcomes in hospitals (AHRQ, 2024; Carvalho et al., 2023). Ensuring patient safety is fundamental to delivering high-quality healthcare across all levels of the system, including in long-term care settings (Garay et al., 2023; Halligan et al., 2014; Nunes et al., 2024). With increasing life expectancy, healthcare costs for older adults, and concerns about quality of care, there is a significant projected increase in the demand for long-term care services (Garay et al., 2023; He et al., 2020; Jiang et al., 2023). The primary objective of long-term care is to offer a range of professional services, such as healthcare, life support, rehabilitation, and hospice care to those living with chronic disorders or physical and mental disabilities (Kilpatrick et al., 2020). An important pillar of long-term care is nursing homes, which provide 24-hour inpatient nursing care, including medical treatment, social assistance, and personal assistance. These services are provided to individuals who require short-term rehabilitation, long-term nursing care, or ongoing support to maintain their well-being (Kapo & Modi, 2011). Nurses play an essential role in developing effective safety solutions, which directly contribute to improved patient outcomes. To achieve this, their primary motivation should be the cultivation of a robust safety culture, supported by its systematic evaluation. This approach underscores their commitment to and accountability for ensuring patient safety within their care (Hessels et al., 2019).

A variety of instruments have been created for assessing safety culture in nursing home settings

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(Kim et al., 2022). Among these, the Nursing Home Survey on Patient Safety Culture (NHSPSC) is widely recommended for evaluating patient safety culture from the perspective of healthcare professionals (AHRQ, 2008). It is considered one of the most widely accepted tools. The psychometric properties of this tool have been evaluated across diverse sociocultural contexts (Fauziningtyas et al., 2023; Lin et al., 2017; Viksveen et al., 2022; Vrotsou et al., 2021; Zúñiga et al., 2013). Assessing patient safety culture using this tool is considered the first step in identifying areas that need improvement and challenges to providing safe care in nursing homes (Castle et al. 2010). In the Slovak Republic, the exploration of safety culture has mainly focused on hospital settings (Gurková et al., 2020; Kalánková et al., 2021; Kurucová et al., 2022; Sováriová Soósová, 2021), with relatively limited research conducted in long-term care institutions.

Aim

The aim of the study was to examine how healthcare professionals evaluate patient safety culture within long-term care facilities that provide nursing home care services in the Slovak Republic.

Methods

Design

A descriptive cross-sectional study design was employed to explore patient safety culture.

Sample

The research sample consisted of healthcare professionals (i.e., nurses and nursing assistants) who met the predefined inclusion criteria: informed consent, employment in long-term care facilities supplying nursing home care services for more than three months, a willingness to cooperate, and position as a nurse or nursing assistant. The research sample comprised 161 respondents from 12 long-term care facilities (healthcare facilities for seniors), with a mean age of 43 years. Females represented 90.68% of the sample and 63.97% held the position of nursing assistant. Notably, 71.70% of the respondents reported working at least one hour of overtime per week, while 23.13% indicated plans to leave their position within the next year. Further details on the characteristics of the study population are presented in Table 1.

Data collection

Data collection for this study was conducted between January 2023 and February 2024 in long-term care facilities in the Žilina Region that met the criteria for nursing home care. A total of 161 completed questionnaires were incorporated into the statistical analysis, representing a 53.67% response rate from all participants contacted.

Patient safety culture was evaluated using the Nursing Home Survey on Patient Safety Culture (NHSPSC) instrument (AHRQ, 2008) which was translated into Slovak using the forward-backwards translation method. The NHSPSC comprises 42 items categorized into 12 dimensions: Teamwork (four items); Staffing (four items); Compliance with Procedures (three items); Training and Skills (three items); Nonpunitive Response to Mistakes (four items); Handoffs (four items); Feedback and Communication about Incidents (four items); Communication Openness (three items), Supervisor Expectations and Actions Promoting Resident Safety (three items); Overall Perceptions of Resident Safety (three items); Management Support for Resident Safety (three items) and Organizational Learning (four items). Each item within these dimensions is rated on a 5-point Likert scale, whereby 1 indicates "do not agree at all (never)" and 5 indicates "strongly agree (always)." Negatively formulated items in the questionnaire were recoded and subsequently evaluated. The reliability of the NHSPSC in terms of internal consistency was assessed using the Cronbach alpha coefficient. The alpha coefficient of the NHSPSC was 0.913 and ranged from 0.72 to 0.88 for the 12 dimensions (Table 2).

Data analysis

Data analysis was performed using IBM SPSS Statistics version 25.0. The descriptive statistics encompassed the calculation of absolute and relative frequencies, means, standard deviations, and percentages of positive responses. A high degree of support for patient safety was indicated by a positive response rate of at least 75%. (Sováriová Soósová et al., 2017). Spearman's rho correlation coefficient was employed to examine the relationships between variables at the 1% and 5% significance levels. Additionally, multiple linear regression analysis was utilized to identify predictors of the level of safety.

Results

The average percentage of positive responses for each dimension is presented in Table 2. Our research findings indicate that none of the dimensions reached the 75% threshold, suggesting that a strong patient safety culture was not present in the selected long-term care facilities in Slovakia.

Table 1 Sample characteristics

Characteristics	N (%)	
Gender		
female	146 (90.68)	
male	15 (9.32)	
Education		
vocational secondary	79 (49.13)	
higher vocational	30 (18.75)	
university education I. degree	29 (18.13)	
university education II. degree	23 (13.66)	
Job position		
nursing assistant	103 (63.97)	
nurse	58 (36.03)	
Hours worked per week		
less than 30 hrs.	8 (5.00)	
30–40 hrs.	115 (71.88)	
40 hrs. and more	37 (23.13)	
Working hours		
day shift 8 / 12 hrs.	49 (30.63)	
afternoon shift 8 / 12 hrs.	9 (5.63)	
night shift 8 / 12 hrs.	5 (3.13)	
alternating day / night / afternoon shift 8 / 12 hrs.	97 (60.63)	
Overtime		
none	45 (28.13)	
1–12 hrs.	86 (53.57)	
more than 12 hrs.	29 (18.13)	
Intention of turnover from the workplace		
yes, within six months	13 (8.13)	
yes, within a year	24 (15.00)	
not within the next year	123 (76.88)	
	Average	**SD**
Age	43.70	10.18
Length of experience	12.42	8.63

n – number; SD – standard deviation

Table 2 Descriptive analysis and reliability of NHSPSC dimensions

Dimension	Average % of positive responses	Cronbach's alfa coefficient
Feedback and Communication about Incidents	72%	0.82
Overall Perceptions of Resident Safety	69%	0.88
Handoffs	68%	0.84
Management Support for Resident Safety	58%	0.79
Supervisor Expectations and Actions Promoting Resident Safety	58%	0.82
Training and skills	56%	0.78
Teamwork	52%	0.88
Communication Openness	44%	0.83
Organizational Learning	43%	0.80
Compliance with Procedures	40%	0.72
Nonpunitive Response to Mistakes	38%	0.88
Staffing	36%	0.78

NHSPSC – Nursing Home Survey on Patient Safety Culture

The highest scores were found in the dimensions of Feedback and Communication About Incidents (72%) and Overall Perceptions of Resident Safety (69%). In contrast, the lowest percentages were observed in the dimensions of Staffing (36%), Nonpunitive Response to Mistakes (38%), and Compliance with Procedures (40%).

The association between patient safety culture and various job characteristics of nurses are displayed in Table 3. Poorer ratings for patient safety grades were linked to increased number of hours worked per week, lower overall job satisfaction among nursing staff, and diminished ratings in several patient safety culture dimensions, including Teamwork, Training and Skills, Handoffs, Feedback and Communication About Incidents, Supervisor Expectations and Actions Promoting Resident Safety, Overall Perceptions of Resident Safety, Management Support for Resident Safety, and Organizational Learning. Significant positive correlations were found between all dimensions of patient safety culture and overall job satisfaction of healthcare professionals.

Table 3 Patient safety grades and NHSPSC dimensions in relation to selected health worker job characteristics

Spearman's rho	Degree of patient safety	Number of hours worked per week	Work experience in current workplace	Overall job satisfaction
Degree of patient safety		-0.108**	0.062	0.158**
Teamwork	0.300**	0.071	0.174*	0.265**
Staffing	0.128	0.008	0.091	0.244**
Compliance with Procedures	-0.079	-0.117	0.079	0.148**
Training and skills	0.207**	-0.015	0.157	0.291**
Nonpunitive Response to Mistakes	-0.008	-0.102	0.029	0.228**
Handoffs	0.448**	-0.165*	0.022	0.364**
Feedback and Communication about Incidents	0.436**	-0.118	0.070	0.377**
Communication Openness	-0.120	-0.053	-0.082	0.306**
Supervisor Expectations and Actions Promoting Resident Safety	0.189*	-0.078	0.138	0.340**
Overall Perceptions of Resident Safety	0.198*	0.088	0.133	0.358**
Management Support for Resident Safety	0.171*	-0.050	0.039	0.374**
Organizational Learning	0.162*	-0.091	0.143	0.384**

** p > 0.05; **p > 0.01; NHSPSC – Nursing Home Survey on Patient Safety Culture*

Linear regression analysis was used to identify predictors of the degree of patient safety (Table 4). In the first phase, we included the characteristics of the job of healthcare professionals in the analysis. Significant predictors of favorable perceptions of the degree of patient safety included job position ($p = 0.048$) and intention to leave ($p < 0.005$). In contrast, the number of patients assigned per shift emerged as a significant negative predictor ($p = 0.001$). The second phase tested the degree of safety and dimensions of the NHSPSC. We found a significant association between the degree of patient safety and the dimensions of Supervisor Expectations and Actions Promoting Resident Safety ($p = 0.044$) and Overall Perception of Resident Safety ($p = 0.000$).

Table 4 Linear analysis of the degree of patient safety

Degree of patient safety	Standardised Beta coefficient	p
Position	0.193	0.048
Intention to leave the workplace	0.338	≤ 0.005
Hours worked per week	-0.071	0.392
Experience	0.013	0.909
Overtime	-0.013	0.872
Number of patients per shift	-0.324	0.001
Teamwork	-0.034	0.691
Staffing	-0.093	0.156
Compliance with Procedures	0.005	0.946
Training and skills	-0.132	0.127
Nonpunitive Response to Mistakes	-0.155	0.026
Handoffs	0.174	0.076
Feedback and Communication about Incidents	0.000	0.997
Communication Openness	-0.131	0.093
Supervisor Expectations and Actions Promoting Resident Safety	0.239	0.044
Overall Perceptions of Resident Safety	0.374	0.000
Management Support for Resident Safety	0.005	0.957
Organizational Learning	-0.013	0.880

** p < 0.05*

Discussion

Ensuring patient safety, creating a positive safety culture, and providing high-quality healthcare are essential obligations of every healthcare facility (Weaver et al., 2023). In light of the challenges surrounding long-term care provision in the Slovak Republic, including the shortage of facilities, inadequate staffing, the growing number of patients who need long-term care services, and limited financial resources, the study aimed to explore how healthcare professionals assess safety culture of patients within long-term care settings in Slovakia. Our research using the NHSPSC did not reveal a "strong" culture in any dimensions of safety culture, with the mean percentage of positive responses falling below 75%. The dimensions that exhibited the highest percentages of positive answers related to patient safety culture were Feedback and Communication about Incidents (72%), Overall Perception of Resident Safety (69%), and Handoffs (68%). Several authors (e.g., Temkin-Greener et al., 2020; Weaver et al., 2023; Tussardi et al., 2023) emphasize the key role of effective information transfer among healthcare professionals, as well as the significance of feedback and supervisory support in problem-solving scenarios. In our research, the lowest percentages of positive answers were recorded for the dimensions of Compliance with Procedures (40%), Nonpunitive Response to Mistakes (38%), and Staffing (36%). Staffing emerged as the most significant challenge in long-term care. According to the country's health profile for 2023, Slovakia has only 5.7 nurses per 1,000 inhabitants, which is significantly lower than the EU average of 8.5 nurses per 1,000 inhabitants (Organisation for Economic Co-operation and Development [OECD], 2024). In long-term care, there are just 1.5 nurses per 100 residents, which is less than half the average of the European Union (European Commission, 2021). Inadequate adherence to prescribed standards adversely impacts quality of care and increases the overall risk to patient safety, increasing the likelihood of adverse events including falls, pressure ulcers and medication errors. In addition, the absence of nonrepressive management strategies negatively influences overall job satisfaction among healthcare professionals, thus undermining the safety culture (Desmedt et al., 2021; Tussardi et al., 2023).

In our research, the dimensions of safety culture exhibited a positive correlation with the overall satisfaction with work of healthcare professionals, a finding corroborated by the study conducted by Świtalski et al. (2023). Buljac-Samardzic et al. (2016) also affirm this positive relationship, indicating that job satisfaction, patient safety, teamwork, and work climate are interlinked. In addition, they emphasize that a decrease in safety culture is related to a decrease in quality of care, job satisfaction, and teamwork, which can lead to burnout syndrome and increased turnover among

staff. The problem of shortages of healthcare professionals due to turnover and its impact on patient safety in nursing homes is also underscored by Banaszak-Holl et al. (2017) and Krein et al. (2022). The relationship between patient safety culture and turnover of healthcare professionals is complex and reciprocal. Efforts aimed at staff retention may consider ways to improve patient safety culture, particularly in the areas which are the most sensitive to daily care in the nursing home (Temkin-Greener et al., 2020). In this context, Chu et al. (2014) have described how leadership is significant in influencing nurse turnover in long-term care facilities.

Through linear regression analysis, we identified several positive predictors of patient safety in long-term care settings, including respondents' job position, supervisor expectations and actions promoting patient safety, general perceptions of patient safety, the quality of care provided, and intentions to leave their current job position. These results are consistent with the study conducted by Seljemo et al. (2020), which also identified positive predictors of safety ratings, such as supervisor expectations and actions promoting patient safety, training and skills, job position, job satisfaction, and number of hours worked. In our research, the number of patients per shift emerged as a negative predictor of patient safety. Previous investigations (Arnetz et al., 2011; Banaszak-Holl et al., 2017; Seljemo et al., 2020) have similarly demonstrated a correlation between elevated patient-to-staff ratios and diminished safety rates, as well as an increased incidence of adverse events within long-term care institutions. Furthermore, these studies indicate that longer working hours, a poorer working environment for healthcare professionals, and intentions to leave the workplace also contribute to these negative outcomes.

Limitation of the study

It is important to acknowledge that this study has several limitations that could potentially influence the validity and generalizability of our findings, particularly when considering their applicability across various sociocultural contexts. The data collected from the respondents using the NHSPSC tool represent their subjective views on the patient safety culture in long-term care settings. Data on the safety culture of patients were collected exclusively from respondents employed in long-term care settings whose management consented to their participation in our research. Furthermore, the small sample size of the respondents may not accurately reflect the perspectives on patient safety culture across the entire target population in long-term care settings.

Conclusion

Inadequate staffing levels have led to increased demands on long-term care, jeopardizing patient safety, and diminishing the quality of care delivered. The culture of patient safety in selected long-term care settings in Slovakia has a significant impact on the total level of patient safety; therefore, regular evaluations of this culture can be instrumental in monitoring changes in this critical area. Implementing a safety culture in practice is essential for reducing adverse events and preventing harm to patient health. Furthermore, it allows for comparisons of outcomes nationally and internationally.

Ethical aspects and conflict of interest

Respondents were informed of the objectives of the study, and were assured of anonymity, confidentiality, and the voluntary nature of their participation, before administering the questionnaire. The study was approved by the Ethics Committee of JLF UK, number EK 80/2022, dated December 7, 2022. The authors declare that they have no conflicts of interest.

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Author contributions

Conception and design (PM, RK), data collection (PM, RK), data analysis and interpretation (PM, RK), manuscript draft (PM, RK), critical revision of the manuscript (MT), final approval of the manuscript (PM, RK, MT).

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