

ORIGINAL RESEARCH

# What Factors Influence Patient Measures of Safety Among Adults?

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Purpose: This study aimed to examine the level of patient measures of safety and identify the influencing factors of patient measures of safety among Korean.

Methods: This study was a cross-sectional study. From February 7 to February 12, 2024, data were collected through a structured online questionnaire consisting of items about general characteristics, patient safety knowledge, nurse-patient interaction, experience of patient participation, willingness to participate in patient safety, and patient measures of safety involving 330 adults. Since there were no incomplete responses, data from all 330 participants were included in the final analysis. The collected data were analyzed using descriptive statistics, t-test, chi-square test, analysis of variance, post-hoc test, correlational analysis, and regression analysis.

**Results:** Patient measures of safety showed significant positive correlations with patients' safety knowledge, nurse-patient interaction, patient experience in participating in safety activities, and patients' willingness to participate in safety activities. The employment status, nurse-patient interaction, patient experience in safety activities, and willingness to participate in safety activities were identified as significant factors affecting patient measures of safety.

**Conclusion:** Enhancing nurse-patient interaction—a crucial determinant of patient safety measures—would require implementing effective communication programs. Additionally, it is significant to facilitate patient expression of safety concerns and establish a patient-centered safety monitoring and feedback system. This would actively promote patient participation in safety activities. Keywords: patient safety, nurse-patient relations, patient participation, patient reported outcome measures

#### Introduction

Owing to patient safety incidents in the medical field worldwide, the importance of patient safety is increasingly emphasized. Patient safety refers to a structured medical framework implemented by healthcare providers to minimize preventable harm and mitigate its impact when such harm occurs.<sup>1</sup> Every year, many patients suffer harm due to unsafe medical practices, making this one of the leading causes of death and disability globally.<sup>1</sup> Patient safety continues to be recognized as a critical worldwide healthcare issue. Therefore, the World Health Assembly took a significant step in 2019 by adopting a worldwide initiative for patient safety, underscoring the need to raise awareness about its importance.<sup>2</sup>

To date, patient safety research has primarily focused on healthcare providers and institutions. However, with increasing emphasis on the idea that awareness of health safety among patients and their caregivers can prevent medical accidents, research has begun to assess patient-perceived safety.<sup>3</sup> Safety assessment by patients<sup>4</sup> can enhance patient safety by enabling patients and their caregivers to identify unsafe situations during medical service delivery.<sup>5</sup> Additionally, these measures help healthcare providers understand safety issues from patients' perspectives,<sup>6</sup> thereby contributing positively to the prevention of patient safety incidents.<sup>7</sup> Previous studies on patient measures of safety include research on safety awareness among inpatients and their level of engagement in safety activities,<sup>8</sup> safety awareness among hematology and oncology patients and their participation in safety activities,<sup>9</sup> patient safety assessments by chronic kidney disease patients,<sup>10</sup> and safety incidents perceived by patients in primary care.<sup>11</sup> However, no study has assessed the factors affecting patient safety as perceived by the general public.<sup>3</sup> The public has the right to be assured of patient safety. As

patient safety assessment plays a crucial role in ensuring patient safety, it is essential to examine the level of awareness of patient safety assessment among the general public and identify the factors influencing it.

Previous studies have reported that the higher the level of patient safety knowledge and nurse-patient interaction, the greater the patient participation in safety activities.<sup>12</sup> Additionally, the greater the patient's willingness to participate in safety activities has been shown to positively influence patients' awareness of patient safety.<sup>9</sup> These findings suggest that patients' willingness to engage in safety activities, their knowledge of these activities, and nurse-patient interactions enhance patient participation. Additionally, the experience of participating in safety activities can affect how patients assess patient safety.<sup>9,12</sup> However, no study has examined the direct relationships among these factors.

This study examined patient measures of safety among Korean adults who have been previously admitted to a medical institution. It investigated the influence of patients' knowledge of patient safety, nurse-patient interaction, previous participation experience in safety activities, and patients' willingness to participate in safety activities on patient measures of safety. The ultimate goal of this study is to contribute to the implementation of measures and environments that facilitate active patient participation in safety activities, thereby promoting the establishment of a safer medical system.

# Methods

### Study Design

This study is a cross-sectional study investigating the factors affecting patient measures of safety among Korean adults who have previously been admitted to a medical institution.

# Participants and Data Collection

Participants included adults aged  $\geq$ 19 years and <70 years who were admitted to a domestic medical institution within the past year. Those currently admitted were excluded. Data were collected from February 7, 2024, to February 12, 2024. The recruitment of subjects was conducted by a major research firm in Asia (Macromill Embrain) to recruit adults with hospitalization experience nationwide. The company has an online survey panel of about 1 million people in South Korea, and conducts more than 4000 online and offline surveys annually, including research surveys, social public surveys, and marketing surveys. The researcher instructed the company on the questionnaire and survey guidelines, and directly pre-tested the online survey. After that, the online survey was conducted only for those who read the guidance on the questionnaire and agreed to it, targeting a large panel of the professional research company. Participants were provided with an online link where they were informed about the study's purpose, methods, inclusion criteria, and were required to sign a consent form before proceeding to complete the survey. The online survey was set to automatically close when 330 people completed the survey. The questionnaire took approximately 15–20 minutes to complete.

The sample size was calculated using G\*Power 3.1 for multiple regression analysis, with a significance level of 0.05, power of 0.90, effect size of 0.10, and 18 predictors, resulting in a calculated sample size of 267. To account for a potential dropout rate, 330 participants were recruited. No questionnaires were collected with incomplete responses, ensuring that data from all 330 participants were included and analyzed.

#### Instruments

For general patient characteristics, this study investigated gender, age, education level, employment status, financial status, subjective health status, hospitalization within the past year, hospital type, and medical department. Regarding employment status, participants indicated "yes" if they were currently employed, and "no" if they were unemployed, students, or housewives. Hospital types in this study included tertiary hospitals, including university hospitals, with  $\geq$ 300 hospital beds, general hospitals with  $\geq$ 100 and <300 hospital beds, hospitals with  $\geq$ 30 and <100 beds, and clinics with <30 beds. Medical departments in this study were classified into internal divisions (including internal medicine, neurology, psychiatry, dermatology, rehabilitative medicine, and family medicine), surgery divisions (such as orthopedics, cardiothoracic surgery, neurosurgery, urology, plastic surgery, optometry, and otolaryngology), and clinical support divisions (including emergency medicine, anesthesiology, and radiology).

#### Patient Safety Knowledge

A tool developed by An et al<sup>14</sup> was used to assess patients' level of safety knowledge. It comprises 10 questions that evaluate aspects such as fall prevention; understanding of one's treatment plan; knowledge of medications, tests, surgery, or procedures; patient verification processes; and healthcare providers' hand hygiene. The tool assesses the patient's comprehension of each concept using a 5-point Likert scale, where responses range from 1 for "Not at all" to 5 for "Very true". Total scores range from 10 to 50, with higher scores indicating greater levels of patient safety knowledge. During its development, the tool achieved a Kuder-Richardson Formula 20 (KR-20) reliability coefficient of 0.92. In this study, it demonstrated a reliability coefficient of 0.88.

#### Nurse-Patient Interaction

To assess nurse–patient interaction, a tool developed by  $\text{Kim}^{15}$  was used. It comprises five questions on nurses' attitudes, and two questions each on anxiety related to nurse–patient interaction and satisfaction with problem resolution—a total of nine questions. Each question was rated on a 5-point Likert scale ranging from 1 for "Not true at all" to 5 for "Very true". Scores were computed by summing the scores of each question, with two questions reverse-scored. Total scores ranged from 9 to 45, with higher scores indicating greater satisfaction with nurse–patient interaction. The tool demonstrated a Cronbach's  $\alpha$  of 0.92 at the time of its development, and 0.85 in this study.

#### Experience of Patient Participation

Patient participation was evaluated using the Patient Participation Questionnaire (PPQ) developed by Berg et al<sup>16</sup> This tool comprises three questions on shared decision-making power, four questions on adapted and individualized knowledge, seven questions on collaboration, two questions on human approach, and one question on overall participation level —a total of 17 questions. Each question assesses the extent of participation on a specific aspect and is rated on a 4-point scale, where 1 indicates "Not at all" and 4 indicates "To a great extent". This tool, which had not been previously used in Korea, was adapted for the Korean context by the researchers conducting this study. The adaptation process included a reverse-translation conducted by a nursing major proficient in both Korean and English. The validity of the tool was further confirmed via validation by two nursing professors and three nurses holding master's degrees or higher in nursing. Content validity ratings ranged from 1 point for "Not adequate at all" to 4 points for "Very adequate". Revisions were encouraged as required. The item-level Content Validity Index (I-CVI) ranged from 0.8 to 1.0, and the Scale-level Content Validity Index (S-CVI/Ave) was 0.98, encompassing all 18 items. For overall participation level, participants indicated 'yes' or 'no' regarding their engagement in health management, which was not included in the total scores. Total scores ranged from 16 to 64 points, with higher scores indicating greater levels of patient participation. The tool demonstrated a Cronbach's  $\alpha$  of 0.89 during its development, and 0.93 in this study.

#### Willingness to Participate in Patient Safety

A tool developed by Lee,<sup>17</sup> and revised by Woo et al<sup>18</sup> was used to assess patients' willingness to participate in safety activities. The tool comprises 14 questions (one on decision-making, two on information provision, five on asking questions, four on confirming, and two on reporting issues), along with five questions on whether patients would be more willing to engage in safety activities if healthcare professionals (physicians and nurses) emphasized the importance of activities in each of these categories—a total of 19 questions. Each question was rated on a 4-point Likert scale, where 1 indicated "Not at all" and 4 indicated "Very true". Total scores ranged from 19 to 76, with higher scores indicating greater willingness to participate in safety activities. The tool demonstrated a Cronbach's  $\alpha$  of 0.93 in Woo et al's study,<sup>18</sup> and 0.93 in this study.

#### Patient Measures of Safety

Patient safety was assessed using the Patient Measure of Safety (PMOS)-30. It is an abridged version of the PMOS developed by Giles et al<sup>6</sup> which comprises 44 questions. It was reduced to 30 questions by Louch et al<sup>19</sup> with verified reliability and validity. The was one question on dignity and respect (1), five questions on communication and team-work (2), four questions on organization and care-planning (3), three questions on access to resources (4), seven questions on ward type and layout (5), two questions on information flow (6), four questions on staff roles and responsibilities (7), two

questions on staff training (8), and two questions on delays—a total of 30 questions across eight domains. This tool, which had not been previously used in Korea, was adapted for the Korean context by the researchers conducting this study. The adaptation process included a reverse-translation conducted by a nursing major proficient in both Korean and English.

The validity of the tool was further confirmed via validation by two nursing professors and three nurses holding master's degrees or higher in nursing. Content validity ratings ranged from 1 point for "Not adequate at all" to 4 points for "Very adequate". Revisions were encouraged as required. The I-CVI ranged from 0.8 to 1.0, and the S-CVI/Ave was 0.97, encompassing all items. Each question was rated on a 5-point Likert scale, where 1 indicated 'Not at all' and 5 indicated 'Very true.' The average score was computed for each question, with 10 questions reverse-scored. Scores ranged from 1 to 5 points, with higher scores indicating a more positive patient safety assessment. The tool demonstrated a Cronbach's  $\alpha$  of 0.89 in Louch et al's study,<sup>19</sup> and 0.93 in this study.

# Data Analysis

The data collected from the questionnaires were analyzed using the SPSS 27.0 software (IBM Inc., Armonk, NY, USA). General characteristics and key variables were analyzed using frequency, percentage, mean, and standard deviation. Differences in patient safety assessment results across participant characteristics were assessed using the chi-squared test, *t*-test, ANOVA, and Scheffé test. Correlations among the major variables were examined using Pearson's correlation coefficients. Factors influencing patient safety assessment were investigated using hierarchical regression analysis.

# **Ethical Considerations**

In this study, data collection commenced following approval from the Institutional Review Board of Kyungpook National University, Republic of Korea (no. 2024–0153). This study was conducted in compliance with the principles of the Declaration of Helsinki. Participants were informed regarding their right to withdraw from the survey at any time without penalty. They were assured that the collected data would be used solely for research purposes and would remain anonymous. Survey data were organized by the researchers to ensure confidentiality and stored in encrypted form. All participants who completed the survey received a modest compensation.

# Results

# Participants' General Characteristics

The study included 43.9% male and 56.1% female participants. The mean age was  $41.15 \pm 11.66$  years, and 19-39 years was the largest age group (48.5%). A majority of participants (72.4%) held a university degree, and most (74.8%) were employed at the time of the study. Additionally, 72.49% reported a middle economic status, and 72.4% rated their health status as normal. The average hospital stay duration in the past year was  $7.56 \pm 11.01$  days, with stays of 1–5 days being the most common (61.8%). General hospitals were the predominant hospital type (33.1%), and surgery was the most frequently visited department (60.0%) (Table 1).

# Level of Main Variables

Table 2 summarizes the results of patients' level of safety knowledge, nurse-patient interaction, past participation in safety activities, and patient measures of safety. Skewness for all variables was below  $\pm 2$ , and kurtosis was below  $\pm 7$ , indicating adherence to the normality assumption. Mean scores were  $34.15\pm6.28$  for patient safety knowledge,  $31.98\pm4.90$  for nurse-patient interaction,  $40.99\pm8.40$  for past participation in safety activities, and  $61.32\pm8.31$  for patients' willingness to participate in safety activities. The overall mean score for patient measures of safety was  $3.50\pm0.48$ , with the highest mean score of  $3.78\pm0.63$  observed in the staff training domain and the lowest of  $3.29\pm0.54$  in the access to resources domain.

# Difference in Patient Measures of Safety Based on Participants' Characteristics

Significant differences in patient measures of safety were identified across age groups (F=9.73, p<0.001), employment status (t=-3.47, p=0.001), and medical departments (F=3.19, p=0.042) among the general characteristics (Table 1).

Characteristics	Categories	n (%) or	Patient Measures of Safety			
		M ± SD	M±SD	t or F	∲ (Scheffé)	
Gender	Men	145 (43.9)	3.47±0.47	-0.97	0.332	
	Women	185 (56.1)	3.52±0.50			
Age (years)	19~39ª	160 (48.5)	3.53±0.49	9.73	<0.001	
	40~59 <sup>b</sup>	143 (43.3)	3.40±0.45		c>a,b	
	60~70 <sup>c</sup>	27 (8.2)	3.82±0.48			
	Total	41.15±11.66	-			
Education level	High school graduate or lower	50 (15.2)	3.56±0.46	1.57	0.210	
	College graduate	239 (72.4)	3.51±0.49			
	Master's or higher	41 (12.4)	3.38±0.45			
Job	Yes	247 (74.8)	3.44±0.44	-3.47	0.001	
	No	83 (25.2)	3.68±0.56			
Financial status			3.48±0.51	1.20	0.303	
	Moderate	239 (72.4)	3.50±0.48			
	High	13 (4.0)	3.70±0.71			
Subjective health status	Low	49 (14.9)	3.37±0.42	2.28	0.103	
	Moderate	239 (72.4)	3.52±0.49			
	High	42 (12.7)	3.60±0.51			
Hospitalization period within I year (days)	I~5	204 (61.8)	3.52±0.49	0.38	0.768	
	6~10	74 (22.4)	3.48±0.51			
	11~15	25 (7.6)	3.42±0.47			
	> <b>15</b>	27 (8.2)	3.52±0.42			
	Total	7.56±11.01	-			
Hospital type	Tertiary hospital	104 (31.5)	3.51±0.50	1.47	0.223	
	General hospital	109 (33.1)	3.49±0.44			
	Hospital	76 (23.0)	3.44±0.46			
	Clinic	41 (12.4)	3.63±0.59			
Medical department	Internal division <sup>a</sup>	124 (37.6)	3.45±0.44	3.19	0.042	
	Surgery division <sup>b</sup>	198 (60.0)	3.55±0.51		a=b=c	
	Clinical support division <sup>c</sup>	8 (2.4)	3.20±0.50			

Table I Differences in Patient Measures of Safety Based on Characteristics (N=330)

Table 2 The Level of Study Variables (N=330)

Variables	Range	Min	Max	M±SD
Patient safety knowledge	10~50	16.00	50.00	34.15±6.28
Nurse–patient interaction	9~45	17.00	45.00	31.98±4.90
Experience of patient participation	16~64	20.00	64.00	40.99±8.40
Willingness to participate in patient safety	19~76	23.00	76.00	61.32±8.31
Patient measures of safety	I~5	2.03	4.97	3.50±0.48
Communication and team-work	I~5	1.60	5.00	3.45±0.63
Organization and care-planning	I~5	2.00	5.00	3.52±0.56
Access to resources	I~5	1.67	5.00	3.29±0.54
Ward type and layout	I~5	1.71	5.00	3.36±0.70
Information flow	I~5	1.50	5.00	3.60±0.66
Staff roles and responsibilities	۱~5	1.25	5.00	3.63±0.65
Staff training	۱~5	2.00	5.00	3.78±0.63
Delays	I~5	1.00	5.00	3.61±0.72

#### **Correlations Among Main Variables**

Patient measures of safety showed significant positive correlations with patients' safety knowledge (r=0.35, p<0.001), nurse-patient interaction (r=0.75, p<0.001), patient experience in participating in safety activities (r=0.63, p<0.001), and patients' willingness to participate in safety activities (r=0.50, p<0.001) (Table 3).

## Factors Affecting Patient Measures of Safety

Regression analysis was conducted to identify the factors influencing patient measures of safety. In Step 1, general characteristics that significantly impacted patient measures of safety, such as age, employment status, and medical department, were included as variables. In Step 2, additional variables that showed significant correlations with patient measures of safety were introduced: patients' safety knowledge, nurse–patient interaction, patient experience in safety activities, and patients' willingness to participate in safety activities. Upon verifying the basic regression assumptions, the Durbin–Watson indices for Steps 1 and 2 were 2.03 and 1.99, respectively—both close to 2, thus satisfying the assumption of independence of residuals. Additionally, tolerance values were greater than 0.1, and the variance inflation factors (VIF) were less than 10, indicating no issues with multicollinearity.

In Step 1, age, employment status, and medical department were identified as significant factors affecting patient measures of safety. Patients aged 19–39 and 40–59 reported significantly lower patient safety measures compared to those in their 60s and 70s. Unemployed patients reported significantly more positive safety measures than those who were employed. Furthermore, patients admitted to a surgery division reported significantly more positive safety measures compared to those admitted to a clinical support division.

In Step 2, employment status, nurse–patient interaction, patient experience in safety activities, and willingness to participate in safety activities were identified as significant factors affecting patient measures of safety. Unemployed individuals had significantly more positive safety measures compared to employed individuals ( $\beta$ =0.07, p=0.049). Additionally, higher levels of nurse–patient interaction ( $\beta$ =0.55, p<0.001), patient experience in safety activities ( $\beta$ =0.19, p<0.001), and willingness to participate in safety activities ( $\beta$ =0.18, p<0.001) were associated with significantly more positive patient safety measures. The model fit was statistically significant in Step 2 (F=68.55, p<0.001) (Table 4).

# Discussion

This study explored factors influencing patient safety assessments among adult patients previously hospitalized. The mean score for patient safety assessments in this study was 3.50—lower than the 4.18 reported in a Turkish study<sup>20</sup> using the same assessment tool. Turkey is emerging as a medical tourism destination owing to its high-quality Joint Commission International (JCI)-accredited hospitals, geographical accessibility, and cost-effective medical services.<sup>21</sup> It appears that higher scores in patient safety assessments in the previous study may be attributed to these medical services enhancing patient satisfaction with safety and healthcare services.

Variables	I	2	3	4	5
	r (p)				
I.Patient safety knowledge	I				
2.Nurse-patient interaction	0.34	1			
	(<.001)				
3.Experience of patient participation	0.40	0.61	1		
	(<.001)	(<.001)			
4.Willingness to participate in patient safety	0.32	0.39	0.39	1	
	(<.001)	(<.001)	(<.001)		
5.Patient measures of safety	0.35	0.75	0.63	0.50	Т
	(<.001)	(<.001)	(<.001)	(<.001)	

Table 3 Correlation	ns Among	g Main Variables	5
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Variables		Step I			Step 2		
		В	β	t (p)	В	β	t (p)
(Constant)		3.19		15.37 (<.001)	0.42		2.17 (0.031)
Age (years)	19~39	-0.22	-0.23	-2.29 (0.022)	-0.02	-0.02	-0.35 (0.727)
(ref=60~70)	40~59	-0.37	-0.38	-3.75 (<.001)	-0.08	-0.08	-1.27 (0.207)
Job (ref=Yes)	No	0.21	0.19	3.50 (0.001)	0.08	0.07	1.98 (0.049)
Medical department	Internal division	0.27	0.27	1.58 (0.115)	0.16	0.16	1.51 (0.133)
(ref=Clinical support division)	Surgery division	0.37	0.37	2.20 (0.028)	0.12	0.12	1.12 (0.263)
Patient safety knowledge					0.00	0.02	0.47 (0.636)
Nurse–patient interaction					0.05	0.55	12.52 (<.001)
Experience of patient participation					0.01	0.19	4.31 (<.001)
Willingness to participate in patient safety					0.01	0.18	4.81 (<.001)
R <sup>2</sup> , adjusted R <sup>2</sup> (Δadj. R <sup>2</sup> ) F ( <i>þ</i> )			0.11, 8.00 (•		0.66, 0.65 (0.55) 68.55 (<.001)		

 Table 4 Factors Affecting Patient Measures of Safety (N=330)

This study identified that nurse-patient interaction, patient experience with safety activities, patients' willingness to participate in safety activities, and employment status significantly influenced patient safety measures, with nurse-patient interaction being the most impactful among adults. Effective communication, feedback, and supportive relationships between patients and healthcare staff encourage patient participation in safety activities.<sup>22</sup> Enhancing nurse-patient interactions improves healthcare service quality and patient satisfaction, involving patients directly in medical processes,<sup>23</sup> thereby enhancing patient safety.<sup>13</sup> Essentially, increased nurse-patient interaction levels actively engage patients in safety activities, thereby positively influencing patient safety measures. Therefore, it is crucial to create a medical environment that facilitates nurse-patient interactions, considering patients' illnesses and treatment processes, and to develop programs aimed at enhancing communication between nurses and patients.

In this study, patient experience in safety activities significantly influenced patient measures of safety. It not only enhanced patient satisfaction<sup>24</sup> but also increased patient safety awareness and helped prevent safety incidents, thereby contributing positively to patient safety.<sup>9,12</sup> The mean score for patient experience with safety activities in this study was 40.99—lower than the 56.28 reported by Berg et al<sup>16</sup> who assessed patient experiences with safety activities among Danish patients using the same assessment tool. Denmark implemented a national patient safety accident reporting system in 2003 to actively share feedback and information on patient safety incidents.<sup>25</sup> Such governmental initiatives in patient safety have fostered an environment where patients can actively participate in medical processes and have positively influenced their engagement in safety activities. Therefore, government agencies and healthcare institutions could promote patient participation in their own medical care through advertisements and campaigns, fostering environments that improve hierarchical relationships with healthcare staff and thereby enhancing patient involvement.

In this study, patients' willingness to participate in safety activities significantly influenced patient measures of safety. Patients' willingness to participate increases with more positive relationships between healthcare staff and patients.<sup>26</sup> Conversely, patients may perceive barriers to participating in safety activities if they experience hierarchical relationships with medical staff.<sup>22</sup> Higher patient willingness to participate positively affects patient safety outcomes.<sup>22</sup> Therefore, to encourage patients' willingness to engage in safety activities, medical staff could develop patient safety educational programs that consider individual characteristics such as illnesses and severity. Institutions could also organize initiatives such as patient participation campaigns and advertisements aimed at fostering a culture of patient safety.

Among the general characteristics, employment status significantly influenced patient measures of safety. Employed individuals exhibited lower measures of safety compared to those who were unemployed. A previous study<sup>27</sup> indicated that employed patients often expect higher levels of interaction with medical staff and superior healthcare quality and have lower participation in safety activities because of time constraints. However, this study only investigated the presence or absence of a job, not detailed occupational classification. Therefore, further research exploring variations in patient safety measures across different occupational groups is recommended.

In this study, patients' safety knowledge did not significantly influence patient measures of safety. This finding contrasts with the result of Woo et al's study,<sup>18</sup> where patients' safety knowledge increased their willingness to participate in safety activities and positively affected patient safety. Younger age groups are generally more adept at acquiring and utilizing information.<sup>8</sup> The mean age of participants in Woo et al's study<sup>18</sup> was 27.29. In the current study, it was 41.15, encompassing patients in their 60s who may face challenges in acquiring and utilizing information from various sources, potentially minimizing the impact on patient safety assessment. Moreover, as the patient assessment tool measures patients' safety knowledge using a 5-point scale, it may not precisely reflect their actual level of safety knowledge. Therefore, further research on patient safety knowledge or the correlation between patients' safety literacy and patient measures of safety is warranted.

This study is significant as it examined patient safety among adults previously admitted to medical institutions, highlighting the relationships between patient measures of safety and nurse-patient interaction, patient experience in safety activities, and patients' willingness to participate in safety activities. It is unique in its focus on factors influencing patient measures of safety within the general adult population, providing foundational data for developing patient safety activities and educational programs.

#### Limitations

The limitations of this study include the difficulty in confirming causal relationships between variables due to its descriptive survey design. Additionally, as the survey focused on hospitalization experiences within the past year, accurate measurement may have been affected by recall bias. Therefore, a study targeting patients immediately before discharge is recommended. Furthermore, as the data were collected through self-reported questionnaires, there may be discrepancies between the actual level of patient safety knowledge and the reported responses. The use of objective measurement tools is suggested to address this issue.

#### Conclusions

This study identified nurse-patient interaction, patient experience in safety activities, patients' willingness to participate in safety activities, and employment status as significant factors affecting patient measures of safety among adults previously admitted to medical institutions. Enhancing nurse-patient interaction—a crucial determinant of patient safety measures—is recommended to implement effective communication programs. Additionally, it is important to facilitate patient expression of safety concerns and to establish a patient-centered safety monitoring and feedback system. It is recommended that such a system be overseen by governmental or medical institutions, and could be based on patient and caregiver safety assessments. This would actively promote patient participation in safety activities.

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#### Disclosure

The authors report no actual or potential conflicts of interest in this work.

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361