

ANALYSIS OF THE EFFECTS OF EMPLOYEE ENGAGEMENT, JOB SATISFACTION AND INTERPROFESSIONAL COLLABORATION ON PATIENT SAFETY CULTURE IN PROFESSIONAL CARE PROVIDERS AT SAYANG RAKYAT REGIONAL HOSPITAL OF SOUTH SULAWESI PROVINCE

Lucky Nosih ^{1*}, Syahrir A. Pasinringi ², Fridawaty Rivai ³,
Amir Ilyas ⁴, Irwandy ⁵ and Herlina A. Hamzah ⁶

¹ Master's Student of Hospital Administration Study Program, Faculty of Public Health, Hasanuddin University, Indonesia.

*Corresponding Author Email: luckynosih2ndacc@gmail.com

^{2,3,5,6} Master of Hospital Administration Study Program, Faculty of Public Health, Hasanuddin University, Indonesia.

⁴ Department of Criminal Law, Faculty of Law, Hasanuddin University, Indonesia.

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Abstract

This study aims to analyse the effect of Employee Engagement, Job Satisfaction and Interprofessional Collaboration on Patient Safety Culture in professional caregivers at Sayang Rakyat Hospital, South Sulawesi Province. Quantitative research with a cross-sectional design at Sayang Rakyat Hospital, South Sulawesi Province from December 2023 to January 2024. The population was 200 professional caregivers. A sample of 134 people was measured using proportional random sampling method. Data were collected using a questionnaire and analysed using Path Analysis. The results showed there was a significant effect of Employee Engagement on Patient Safety Culture ($p=0.040$, $\beta = 0.161$), there was a significant effect of Job Satisfaction on Patient Safety Culture ($p=0.000$, $\beta = 0.538$), there was no effect of Interprofessional Collaboration on Patient Safety Culture ($p=0.778$, $\beta = 0.022$), there was a significant effect of Employee Engagement on Job Satisfaction ($p=0.001$, $\beta = 0.279$), there is a significant effect of Interprofessional Collaboration on Job Satisfaction ($p=0.001$, $\beta = 0.284$), there is no effect of Employee Engagement on Patient Safety Culture through Job Satisfaction ($\beta = 0.311$), there is an effect of Interprofessional Collaboration on Patient Safety Culture through Job Satisfaction ($\beta = 0.175$). The direct effect pathway of Employee Engagement and Job Satisfaction is the best model to improve Patient Safety Culture and the indirect effect pathway of Interprofessional Collaboration through Job Satisfaction is the best model to improve Patient Safety Culture.

Keywords: Employee Engagement; Job Satisfaction; Interprofessional Collaboration; Patient Safety Culture.

INTRODUCTION

The Institute of Medicine (IOM) report, "To Err is Human" brought worldwide attention to patient safety issues in the late 1990s. The report estimated that nearly 44,000 - 98,000 patients die from preventable errors in American hospitals each year. Healthcare organizations must also eliminate the culture of blaming to allow everyone to learn from mistakes and prevent them from happening again [1].

The World Health Organization, an agency of the United Nations has subsequently raised the importance of patient safety, urging Member States to pay attention to patient safety and to build and strengthen the science base for improvements in patient safety and health quality [2]. Creating and maintaining a strong Patient Safety Culture in healthcare organizations is linked to better performance for healthcare organizations [3].

Patient safety culture is the product of individual and group attitudes, perceptions, competencies and behavior patterns of a healthcare organization that demonstrate the commitment and proficiency of the organization's safety management [4]; [5].

A patient safety culture is determined by many factors within a healthcare organization and can support the prevention and reduction of patient harm [6]. Several studies have shown that patient safety culture can be influenced by respondents, hospital characteristics, work area, position, level of participation in patient safety programs, communication, patient safety leadership and management, supervisor support for patient safety and staffing [7]; [8]; [9]; [10].

In Indonesia alone, based on the comparison data of the Patient Safety Incident Report (IKP) of the Ministry of Health's National Patient Safety Commission in 2015 and 2019, there was a total increase in incidents of 7,176 (24x the number of incidents in 2015) [11].

Researchers attribute the low value of the staffing dimension in the measurement of the patient safety culture survey to the paradigm of organisational behaviour that focuses on the 'Human Side of Management' [12] where individuals are the main component of every organisation that must be managed properly.

Stephen P. Robins defines organisational behaviour as the systematic study of the actions and attitudes that people exhibit in organisations [13]. According to Luthans, 2006 organisational behaviour can be defined as the understanding, prediction and management of human behaviour in organisations, it can also be defined as a field of science that studies human interactions in organisations and their impact on organisational performance where organisational behaviour applies the science of individual, group and organisational behaviour that makes organisations work more effectively [11], so the purpose of this study is to ensure that human behaviour contributes to organisational growth and the achievement of greater efficiency.

The importance of individual commitment in implementing patient safety facilitates the establishment of a patient safety culture at the organisational level [11], Patient safety culture is the product of individual and group attitudes, perceptions, competencies and behaviour patterns of a healthcare organisation that demonstrate the commitment and proficiency of the organisation's safety management [4]; [5].

Employee engagement is a state of mind with a positive, satisfying and work-related emotional attachment characterised by passion, dedication and absorption' [14]. Employee engagement, also known as employee relatedness or employee involvement, has a positive effect on job satisfaction [15]. Employee engagement on safety culture in Midwestern ICUs showed a strong positive relationship between total engagement scores and patient safety scores [16].

In a cross sectional study in Iran in 2016, job satisfaction of health workers working in Military Hospitals had a positive effect on patient safety culture [17]. The same results were also found in a research study in Brazil that there was a proven relationship between employee job satisfaction and safety culture [18].

Based on a cross sectional study conducted on 326 hospital inpatient team members in Germany, it was stated that good interprofessional collaboration was associated with better patient safety [19]. In a cross sectional study conducted in Beijing Dental Hospital stated that doctor-nurse collaboration scores positively predicted job satisfaction and negatively predicted the likelihood of quitting the current job so that

increasing the level of doctor-nurse collaboration is helpful to increase job satisfaction and reduce turnover among nurses in dental hospitals [20].

Based on studies that have been conducted, it is stated that there is a positive relationship from Employee Engagement, Job Satisfaction and Interprofessional Collaboration to Patient Safety Culture, and there is also a relationship between Employee Engagement and Interprofessional Collaboration to Job Satisfaction. Therefore, this study aims to analyse the effect of Employee Engagement, Job Satisfaction and Interprofessional Collaboration on Patient Safety Culture in professional care providers at Sayang Rakyat Hospital, South Sulawesi Province.

MATERIAL AND METHODS

Methodology of the Study and Subjects

This study was a quantitative study with a cross-sectional design, which was conducted at Sayang Rakyat Hospital, South Sulawesi Province, from December 2023 to January 2024. The population in this study consisted of 200 professional caregivers at Sayang Rakyat Hospital, South Sulawesi Province with a sample of 134 samples selected using proportional random sampling method. The sample size of 200 professional care providers was determined using the Slovin formula. Data were collected using questionnaires and analysed using Path Analysis.

The questionnaires was in Bahasa Indonesia that had been tested for validity and reliability before being used as a survey instrument to respondents. The questionnaire's validity was tested using the Pearson correlation method. Each item was assigned a correlation coefficient value, indicating its degree of validity. An item is considered valid if its significance value is greater than 0.05 (95% CI), which is then adjusted to the r table based on the number of respondents (N). For a sample size of 30 respondents, the r table indicates that a minimum Pearson Correlation value of 0.361 is required. Furthermore, reliability testing uses Cronbach's Alpha formula. In this model, a questionnaire is considered reliable if its Cronbach's Alpha coefficient value is greater than 0.6. Excluding question items that do not meet the validity and reliability test coefficient standards is necessary.

1. Employee Engagement

Employee Engagement is measured using several indicators including Vigour, Dedication and Absorption which are measured by the nine item version of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006). Each dimensional item consists of 5 alternative choices. The questions were modified by the researcher using a Likert scale ranging from (1) never to (5) always. All question items in this questionnaire meet the standard coefficient values, both validity and reliability tests (Cronbach's $\alpha = 0,896$).

2. Job Satisfaction

Job Satisfaction is measured using several indicators including Leadership, Training and Development, Teamwork, Empowerment and Participation, Working Condition, Reward and Recognition, Communication, and Flexibility of Working Hours which are measured by the Job Satisfaction Questionnaire for Health Workforce developed by Ahmad et al., 2020. The questionnaire was measured using 34 question items. The questions were modified by the researcher using a Likert scale ranging from (1) strongly disagree to (5) strongly agree. All question

items in this questionnaire meet the standard coefficient values, both validity and reliability tests (Cronbach's $\alpha = 0,940$).

3. Interprofessional Collaboration

Interprofessional Collaboration is measured using several indicators including Partnership, Cooperation dan Coordination which are measured by the 23 item version of the AITCS II [21]. The questions were modified by the researcher using a Likert scale ranging from (1) strongly disagree to (5) strongly agree. All question items in this questionnaire meet the standard coefficient values, both validity and reliability tests (Cronbach's $\alpha = 0,859$). The various articles showed overall Cronbach alpha values ranging from 0.89 to 0.98. Every item rated had a Cronbach alpha > 0.70 (acceptable). This indicates that the AITCS will continue to be developed in the future because it is an appropriate instrument to use in evaluating interprofessional collaboration [22].

4. Patient Safety Culture

Patient Safety Culture is measured using several indicators including Teamwork, Staffing and Work Pace, Organizational Learning – Continuous Improvement, Response to Error, Supervisor Manager or Clinical Support for Patient Safety, Communication about Error, Communication Oppenenss, Reporting Patient Safety Events, Hospital Management Support for Patient Safety and Handsoff and Information Exchange. The questionnaire was measured using 32 question items of Hospital Survey On Patient Safety 2.0 instrumen (2019) oleh AHRQ (23). The questions were modified by the researcher using a Likert scale ranging from (1) strongly disagree to (5) strongly agree. All question items in this questionnaire meet the standard coefficient values, both validity and reliability tests (Cronbach's $\alpha = 0,736$).

Statistics Analysis

The results of the study will be presented in the form of univariate analysis and multivariate analysis. Univariate analysis is a statistical analysis to describe each respondent's characteristics and the distribution of data from each research variable. Bivariate analysis using cross tabulation was conducted to see the relationship/correlation between independent variables and dependent variables using statistical tests using the Chi-square method or its alternative method (Fisher's test) depending on whether or not the Chi-Square test requirements were met. Multivariate analysis is a statistical analysis to find the amount of direct and indirect influence between several variables. In this study, path analysis was used to explain the causal relationship between Employee Engagement, Job Satisfaction, Interprofessional Collaboration and Patient Safety Culture simultaneously.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Commission, Faculty of Public Health, Hasanuddin University on 01 December 2023, number: 6292/UN4.14.1/TP.01.02/2023.

RESULTS

Univariate Analysis

Table 1: Frequency Distribution based on Respondent Characteristics

No	Respondent Characteristics	N	%	Total
1	Age (years)			
	20-30	8	5,97	134
	31-40	70	52,24	
	41-50	41	30,60	
	>50	15	11,19	
2	Gender			
	Male	24	17,91	134
	Female	110	82,09	
3	Length of work in Hospital (years)			
	1-5	28	20,90	134
	6-10	30	22,39	
	11-15	67	50	
	>15	9	6,72	
4	Length of work in Unit (years)			
	1-5	56	41,79	134
	6-10	36	26,87	
	11-15	39	29,10	
	>15	3	2,24	
5	Number of Working Hours			
	<20 hours a week	12	8,96	134
	20-38 hours a week	71	52,99	
≥ 40 hours a week	51	38,06		
6	Education Level			
	Associate's Degree	38	28,36	134
	Bachelor Degree	81	60,45	
	Magister Degree	15	11,19	
7	Employment Status			
	Non Civil Servant	16	11,94	134
	Civil Servant	113	84,33	
	Part Time	5	3,73	

Source: Primary Data, 2023

Based on table 1 above, it is known that the characteristics of respondents based on age are mostly in the age group 31-40 years, namely 70 people (52%). The characteristics of respondents based on gender were mostly female respondents, namely 110 people (82%). Characteristics of respondents based on length of service in the hospital, the most respondents were respondents with a tenure of 11-15 years, namely 67 people (50%). Characteristics of respondents based on length of service in the unit, the most respondents were respondents with a tenure of 1-5 years, namely 56 people (42%). The characteristics of respondents based on the number of working hours were mostly respondents with working hours 20-39 hours a week, namely 71 people (53%). The characteristics of respondents based on the highest level of education are respondents with a D4 / S1 / equivalent education level, namely 81 people (60%). Characteristics of respondents based on employment status, the most respondents were civil servants, namely 113 people (84%).

Table 2: Frequency Distribution based on Respondent’s Perception of Research Variables

Variable	Score Level	Cut-off score	n	%
<i>Employee Engagement</i>	High	(≥27)	129	96,27%
	Low	(<27)	5	3,73%
	Total		134	100%
<i>Job Satisfaction</i>	Satisfied	(≥102)	129	96,27%
	Dissatisfied	(<102)	5	3,73%
	Total		134	100%
<i>Interprofessional Collaboration</i>	High	(≥69)	127	94,78%
	Low	(<69)	7	5,22%
	Total		134	100%
<i>Patient Safety Culture</i>	High	(≥96)	124	92,54
	Low	(<96)	10	7,46
	Total		134	100%

Source: Primary Data, 2023

Table 2 demonstrates that majority respondents had high score for all research variables. On Employee Engagement, 96,27% (129 respondents) had high score and 3,73% (5 respondents) had low score. On Job Satisfaction, 96,27% (129 respondents) had satisfied score and 3,73% (5 respondents) had dissatisfied score. On Interprofessional Collaboration, 94,78% (127 respondents) had high score and 5,22% (7 respondents) had low score. On Patient Safety Culture, 92,54% (124 respondents) had high score and 7,46% (10 respondents) had low score.

Table 3: Frequency Distribution based on Respondent’s Perception of Employee Engagement Dimensions

No	Dimension	Score Level (cut-off score)	n	%
1	<i>Vigor</i>	High (≥9)	133	99,25%
		Low (<9)	1	0,75%
		Total	134	100%
2	<i>Dedication</i>	High (≥9)	249	94,0%
		Low (<9)	16	6,0%
		Total	134	100%
3	<i>Absorption</i>	High (≥9)	133	99,25%
		Low (<9)	1	0,75%
		Total	134	100%

Source: Primary Data, 2023

Table 3 clearly demonstrates that the *Vigor* dimension has the highest percentage among the Employee Engagement variables, with 99,25% (133 respondents), while the *Dedication* and *Absorption* dimension has the lowest percentage, with 98,51% (132 respondents).

Table 4: Frequency Distribution based on Respondent’s Perception of Job Satisfaction Dimensions

No	Dimension	Score Level (<i>cut-off score</i>)	n	%
1	<i>Teamwork</i>	High (≥ 15)	134	100
		Low (< 15)	0	0
		Total	134	100
2	Leadership	High (≥ 12)	133	99,25
		Low (< 12)	1	0,75
		Total	134	100
3	Reward and Recognition	High (≥ 12)	129	96,27
		Low (< 12)	5	3,73
		Total	134	100
4	Empowerment and Participation	High (≥ 15)	134	100
		Low (< 15)	0	0
		Total	134	100
5	Training and Development	High (≥ 15)	111	82,84
		Low (< 15)	23	17,16
		Total	134	100
6	Flexibility of Working Hours	High (≥ 9)	125	93,28
		Low (< 9)	9	6,72
		Total	134	100
7	Communication	High (≥ 12)	132	98,51
		Low (< 12)	2	1,49
		Total	134	100
8	Working Condition	High (≥ 9)	132	98,51
		Low (< 9)	2	1,49
		Total	134	100

Source: *Primary Data, 2023*

Table 4 shows that the *Teamwork* and *Empowerment and Participation* dimension has the highest percentage among the Job Satisfaction variables, with 100% (134 respondents), while the *Training and Development* dimension has the lowest percentage, with 82,84% (111 respondents).

Table 5: Frequency Distribution based on Respondent’s Perception of Interprofessional Collaboration Dimensions

No	Dimension	Score Level (<i>cut-off score</i>)	n	%
1	Partnership	High (≥ 24)	134	100
		Low (< 24)	0	0
		Total	134	100
2	Cooperation	High (≥ 18)	134	100
		Low (< 18)	0	0
		Total	134	100
3	Coordination	High (≥ 21)	126	94,03
		Low (< 21)	8	5,97
		Total	134	100

Source: *Primary Data, 2023*

Table 5 shows that the *Partnership* and *Cooperation* dimension has the highest percentage among the Interprofessional Collaboration variables, with 100% (134 respondents), while the *Coordination* dimension has the lowest percentage, with 94,03% (126 respondents).

Table 6: Frequency Distribution based on Respondent’s Perception of Patient Safety Culture Dimensions

No	Dimension	Score Level (<i>cut-off score</i>)	n	%
1	<i>Teamwork</i>	High (≥ 9)	129	96,27
		Low (< 9)	5	3,73
		Total	134	100
2	Staffing & Work Pace	High (≥ 9)	107	79,85
		Low (< 9)	27	20,15
		Total	134	100
3	Organizational Learning - Continuous Improvement	High (≥ 9)	133	99,25
		Low (< 9)	1	0,75
		Total	134	100
4	Response To Error	High (≥ 9)	109	81,34
		Low (< 9)	25	18,66
		Total	134	100
5	Supervisor, Manajer Or Clinical Leader Support For Patient Safety	High (≥ 6)	130	97,01
		Low (< 6)	4	2,99
		Total	134	100
6	Communication About Error	High (≥ 9)	131	97,76
		Low (< 9)	3	2,24
		Total	134	100
7	Communication Openness	High (≥ 9)	126	94,03
		Low (< 9)	8	5,97
		Total	134	100
8	Reporting Patient Safety Events	High (≥ 6)	122	91,04
		Low (< 6)	12	8,96
		Total	134	100
9	Hospital Management Support For Patient Safety	High (≥ 9)	129	96,27
		Low (< 9)	5	3,73
		Total	134	100
10	Handsoffs And Information Exchange	High (≥ 9)	111	82,84
		Low (< 9)	23	17,16
		Total	134	100

Source: *Primary Data, 2023*

Table 6 shows that the *Organizational Learning* dimension has the highest percentage among the Patient Safety Culture variables, with 99,25% (133 respondents), while the *Staffing and Work Pace* dimension has the lowest percentage, with 79,85% (107 respondents).

Multivariate Analysis

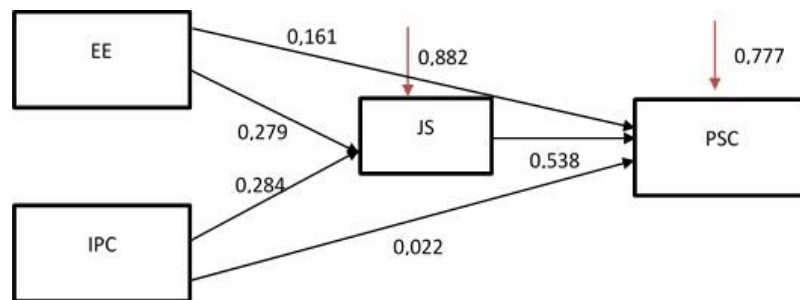
In multivariate analysis, this study utilized path analysis to explain the causal relationship between multiple variables. Before conducting statistical tests for causality, a normality test was first conducted on the research data by using the SPSS 26 software with the following results.

Table 7: Normality test of data

	Unstandardized Residual
N	134
Normal Parameters Mean	.0000000
Std. Deviation	9.45459665
Most Extreme Differences Absolute	.067
Positive	.055
Negative	-.067
Test Statistic	.067
Asymp.Sig. (2-tailed)	.200

Based on Table 7, both univariate and multivariate analyses showed that the study data were normally distributed by using the Kolmogorof-Smirnov test, the significance value was found to be 0.200 (> 0.05) which means that the data is normally distributed. Therefore, the researcher continued to test the hypothesis with Path Analysis.

Based on the results of hypothesis testing, the following model path analysis diagram is obtained:



Picture 1: Path Analysis Model

In this multivariate analysis, hypothesis testing is carried out to see the effect of independent variables (Employee Engagement, Job Satisfaction and Interprofessional Collaboration) on the dependent variable (Patient Safety Culture) directly, and the effect of independent variables (Employee Engagement and Interprofessional Collaboration) on the dependent variable (Patient Safety Culture) through the intervening variable (Job Satisfaction) indirectly using path analysis presented in the following table:

Table 8: Results of Direct Effects between Employee Engagement, Job Satisfaction, Interprofessional Collaboration and Patient Safety Culture

No	Variable Relationship	Path Coefficients (β)	p-value	Interpretation
1	Employee Engagement \rightarrow Patient Safety Culture	0,161	0,040	Significant
2	Job Satisfaction \rightarrow Patient Safety Culture	0,538	0,000	Significant
3	Interprofessional Collaboration \rightarrow Patient Safety Culture	0,022	0,778	Not Significant
4	Employee Engagement \rightarrow Job Satisfaction	0,279	0,001	Significant
5	Interprofessional Collaboration \rightarrow Job Satisfaction	0,284	0,001	Significant

Source: Primary Data, 2023

Table 8 shows that Employee Engagement ($\beta=161$; $p=0.040$) and Job Satisfaction ($\beta=0.538$; $p=0.000$) directly have a positive and significant effect on Patient Safety Culture. The results also showed that Interprofessional Collaboration ($\beta = 0.022$; $p = 0.778$) directly had no significant effect on Patient Safety Culture. Employee Engagement ($\beta = 0.279$; $p = 0.001$) and Interprofessional Collaboration directly have a positive and significant effect on Job Satisfaction.

To determine the indirect effect of Employee Engagement on Patient Safety Culture through Job Satisfaction, the multiplication of the beta values of the two variables is $0.279 \times 0.538 = 0.150$. Then the total influence given by Employee Engagement on Patient Safety Culture is $0.161 + 0.150 = 0.311$. While the indirect effect of

Interprofessional Collaboration on Patient Safety Culture through Job Satisfaction is also multiplied by beta, namely $0.284 \times 0.536 = 0.153$. Then the total influence given by Interprofessional Collaboration on Patient Safety Culture is $0.022 + 0.153 = 0.175$. Based on the description above, it can be described through the following table:

Table 9: Results of Path Analysis Test of Direct and Indirect Effects of Employee Engagement, Job Satisfaction, Interprofessional Collaboration and Patient Safety Culture

Variabel	Direct Effects	Indirect Effects	Total Effects	Interpretation
<i>Employee Engagement</i> → <i>Job Satisfaction</i> → <i>Patient Safety Culture</i>	0,161	0,150	0,311	Job Satisfaction is not an Intervening Variable
<i>Interprofessional Collaboration</i> → <i>Job Satisfaction</i> → <i>Patient Safety Culture</i>	0,022	0,153	0,175	Job Satisfaction is an Intervening Variable

Source: Primary Data, 2023

Table 9 shows that the direct effect = 0.161 is greater than the indirect effect = 0.150 which means that there is no indirect effect of Employee Engagement on Patient Safety Culture through Job Satisfaction with a total effect of 0.311 or 31.1%. This means that Job Satisfaction is not an intervening variable from Employee Engagement to Patient Safety Culture.

The table also shows that the direct effect = 0.022 is greater than the indirect effect = 0.153, which means that there is an indirect effect of Interprofessional Collaboration on Patient Safety Culture through Job Satisfaction. The total effect is 0.175 or 17.5%. This means that Job Satisfaction is an intervening variable from Interprofessional Collaboration to Patient Safety Culture.

DISCUSSION

The results showed that employee engagement has a significant influence on patient safety culture with a magnitude of influence of 16.1%. This shows that increasing staff engagement can be an effective way to improve patient safety. This study is in line with research conducted by [24]; [25], there is a moderate to strong positive correlation between employee engagement and patient safety culture.

The relationship between employee engagement and patient safety culture is multifaceted. Engaged employees feel more confident in hospital leadership, work together effectively, and prioritize patient and employee safety. They are also more likely to perceive that their voices are heard and involved in the decision-making process, which can increase their sense of ownership and accountability for patient safety. In terms of the specific impact of employee engagement on patient safety culture, research shows that it can influence various aspects of patient safety, including error prevention and reporting, resource availability and teamwork, and overall perceptions of patient safety [26].

The results showed that most employees at Sayang Rakyat Hospital have good employee engagement, which is expected to improve the culture of patient safety in the hospital. By fostering a culture of engagement, healthcare organizations can improve patient safety outcomes and create a more positive and effective work environment. The results also show that of the three dimensions of work engagement, only the vigor dimension has a direct influence on patient safety culture with a magnitude of influence of 31.3%. Vigor, as a component of employee engagement,

refers to the energy and enthusiasm that employees have for their work. Research shows that vigor plays an important role in shaping patient safety culture by influencing various aspects of patient safety outcomes.

The results showed that Job Satisfaction has a significant influence on patient safety culture with a large influence of 53.8%. Employee satisfaction has the greatest influence on patient safety culture than other variables. This shows that increasing employee satisfaction can be the most effective way to improve patient safety. This study is in line with research conducted by Research shows that job satisfaction has a positive correlation with patient safety culture. A study in Makassar hospital found that job satisfaction has a significant effect on patient safety culture, with an explanation of variance of 12.2% [27]. This indicates that job satisfaction is a significant predictor of patient safety culture, which is characterized by a group-level measure of norms and behaviors related to patient safety.

The relationship between job satisfaction and patient safety culture is likely due to the fact that employees with higher levels of job satisfaction are more likely to feel confident in hospital leadership, cooperate effectively, and prioritize patient and employee safety [28]. This suggests that fostering job satisfaction among healthcare workers can contribute to a stronger patient safety culture. This highlights the importance of creating a supportive work environment and fostering positive relationships between management and employees to improve patient safety culture.

The results showed that employees at Sayang Rakyat Hospital have good job satisfaction, so it is expected to improve patient safety culture in the hospital supported by a good patient safety culture among employees. The results also showed that of the seven dimensions of job satisfaction, only two were significantly influential, namely leadership and participant empowerment. Effective leadership, particularly transformational leadership, is positively associated with a strong patient safety culture and can strengthen the impact of other factors on patient safety culture [29]; [30]. Leadership, as one component of job satisfaction, refers to the extent to which employees perceive their leaders to be supportive, approachable, and effective in promoting a positive work environment [28].

In addition, participant empowerment also has a significant effect on patient safety culture. There is a significant influence between empowerment and patient safety with a strong level of influence [31]. Empowerment, as one of the dimensions of job satisfaction, refers to the extent to which employees feel they have the authority and autonomy to make decisions that affect patient care and safety.

The relationship between empowerment and patient safety culture is likely due to the fact that empowered employees are more likely to feel confident in their ability to identify and report potential safety risks, as well as take proactive measures to prevent errors [32]. This suggests that encouraging empowerment among healthcare workers can contribute to a stronger patient safety culture. In terms of specific dimensions of empowerment, research shows that structural empowerment, i.e. organizational structures and systems that support employee autonomy, has a positive impact on patient safety culture [33]. This type of empowerment is highly effective in improving patient safety culture by providing employees with the resources and support they need to make informed decisions regarding patient care. Therefore, it is important for hospitals to invest in policies and initiatives that increase employee job satisfaction as an integral part of their patient safety strategy.

The results showed that Interprofessional Collaboration has no significant effect on patient safety culture. This research is not supported by many studies, for example that doctor-nurse collaboration has a significant positive relationship with all levels of patient safety culture [20]. Interprofessional collaboration, implementation of the Surgical Safety Checklist, and Safety Leadership all had a positive and significant effect on patient safety culture. These findings suggest that interprofessional collaboration plays an important role in improving patient safety culture, which is a key aspect in ensuring safe patient care [34].

Interprofessional collaboration in healthcare refers to the practice of healthcare professionals from different disciplines working together to provide the best possible patient care. This collaborative approach involves healthcare providers such as doctors, nurses, pharmacists, therapists and other healthcare professionals to share their knowledge, skills and insights to achieve common goals and improve patient outcomes [35].

The results showed that employee engagement has a significant influence on job satisfaction with a magnitude of 27.9%. This suggests that increasing staff engagement can be an effective way to increase patient satisfaction. Employee engagement has a positive and significant effect on job satisfaction [36]. This relationship is very important because job satisfaction is a key indicator of employee well-being and performance. When employees are engaged in their work, they tend to feel more satisfied with their work, which can increase motivation, productivity, and overall job performance [37].

Employee engagement is an important factor in determining job satisfaction, and its positive impact on job satisfaction can have a significant impact on employee performance and organizational success. The mechanism by which employee engagement affects job satisfaction is multifaceted. One key aspect is the sense of belonging and connection that employees feel with their organization when they are engaged. This sense of belonging can increase job satisfaction as employees feel valued and recognized for their contributions. In addition, employee engagement can also increase job satisfaction through the development of skills and abilities, which can improve work performance and overall job satisfaction [38].

Research consistently shows that engaged healthcare workers are more productive, have better job satisfaction, and are more likely to provide patient-centered care [39]. This engagement is influenced by various factors such as job design, management support, and organizational culture [26]. To improve employee engagement in hospitals, it is recommended to use strategies such as reducing information overload, investing in employee recognition, and prioritizing employee well-being. These initiatives can help create a positive work environment where employees feel valued, supported, and empowered to deliver high-quality services.

The results showed that Interprofessional Collaboration has a significant influence on job satisfaction with a magnitude of 28.4%. This suggests that improving interprofessional collaboration can be an effective way to improve patient satisfaction. Research consistently shows that effective Interprofessional Collaboration results in higher job satisfaction among healthcare workers [40]; [41]. This positive correlation is particularly important in the healthcare sector, as job satisfaction is closely linked to patient care and outcomes.

The results show that job satisfaction is not an intervening variable between work engagement and patient safety culture. This can be seen in the results that the direct effect of employee engagement is greater than the indirect effect. However, if job satisfaction is high in employees, then employee engagement will affect 31.1% of patient safety culture. This shows that Job Satisfaction can strengthen the influence of employee engagement on patient safety culture. Job satisfaction mediates the relationship between work safety performance and work engagement [42].

Studies have shown that higher job satisfaction is associated with an improved patient safety culture, as employees who are satisfied with their jobs tend to be proactive in identifying and reporting safety issues, and participating in safety initiatives. This is because job satisfaction is closely related to employee engagement, which is characterized by positive work-related mindsets including feelings of passion, dedication, and preoccupation with work. Furthermore, research shows that the relationship between employee engagement and patient safety culture is not limited to individual-level factors but also extends to unit- and organization-level factors. For example, one study found that units with higher levels of employee engagement had better patient safety outcomes, including lower adverse event rates and better patient satisfaction [43]. By encouraging higher levels of employee engagement and job satisfaction, healthcare organizations can improve patient safety outcomes and create a safer environment for patients.

The results showed that Job Satisfaction is an intervening variable from the influence of interprofessional collaboration on patient safety culture. This means that interprofessional collaboration can affect patient safety culture if employees have good job satisfaction. Interprofessional collaboration has an influence on patient safety culture through job satisfaction [44]. By fostering a culture of collaboration, communication, and shared decision-making among healthcare professionals, patient safety culture is enhanced, and job satisfaction increases. The synergy between interprofessional collaboration and job satisfaction is essential for delivering high-quality patient care and ensuring patient safety in the healthcare environment.

Job satisfaction plays an important role in the effectiveness of interprofessional collaboration. When healthcare workers are satisfied with their work environment, they are more likely to engage in collaborative practice, which in turn enhances patient safety culture. Job satisfaction is influenced by factors such as teamwork, communication, and shared goals, all of which are important components of interprofessional collaboration [45]. Research consistently shows that interprofessional collaboration is positively correlated with job satisfaction and patient safety culture. Another study showed that interprofessional collaboration is a significant predictor of job satisfaction among healthcare professionals, and this satisfaction is positively associated with patient safety culture [45].

Interprofessional collaboration has a significant positive impact on both employee satisfaction and patient safety in hospitals. By improving communication, reducing workload, and providing emotional support and professional development, Interprofessional Collaboration increases employee satisfaction. On the other hand, by improving the quality of care, reducing medical errors, and promoting a culture of transparency and continuous learning, Interprofessional Collaboration also strengthens the culture of patient safety. These two aspects are mutually supportive and essential to the hospital's success in providing optimal healthcare.

CONCLUSIONS

The results showed that Interprofessional Collaboration and Employee Engagement have a significant effect on Job Satisfaction. While Employee Engagement and Job Satisfaction have a significant effect on Patient Safety Culture. Interprofessional Collaboration does not have a significant effect, but has a significant effect through Job Satisfaction as an intervening variable. Patient safety is important to maintain trust between patients and health care providers. Patients will have more trust in the healthcare system when they feel comfortable and safe while undergoing healthcare services. Patient safety knowledge refers to the ability of health professionals to identify and understand potential patient safety characteristics. Patient safety measures can help reduce healthcare costs associated with preventing errors and adverse outcomes by investing in patient safety.

Conflict of Interest

No conflict of interest

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References

- 1) Kohn LT, Corrigan JM, Molla S. To Err Is Human Building a Safer Health System. America C on Q of HC in, editor. Institute of Medicine. Institute of Medicine; 2000. 312 pages.
- 2) World Health Organization. Fifty-fifth World Health Assembly. Wha55/2002/Rec/1 [Internet]. 2002;(May):1-56 [last accessed 2020 Feb 18]. Available from: <https://apps.who.int/iris/bitstream/handle/10665/259364/WHA55-2002-REC1-eng.pdf?sequence=1&isAllowed=y>
- 3) [3]Levy F. Keeping Patients Safe: Transforming the Work Environment of Nurses. Vol. 32, Critical Care Medicine. 2004. 2169 p.
- 4) [4Nieva VF, Sorra J. Safety culture assessment: A tool for improving patient safety in healthcare organizations. Qual Saf Heal Care. 2003;12(SUPPL. 2):17–23.
- 5) Sorra J and Naomi Dyer. Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. BMC Health Serv Res. 2010;10(Volume, Number, Year, Title):199–211.
- 6) Abdellatif A, Bagian JP, Barajas ER, Cohen M, Cousins D, Denham CR, et al. Patient Safety Solutions Preamble - May 2007. Jt Comm J Qual Patient Saf. 2007;33(7):427–9.
- 7) Jones KJ, Skinner A, Xu L, Sun J, Mueller K. The AHRQ Hospital Survey on Patient Safety Culture: A Tool to Plan and Evaluate Patient Safety Programs. Adv Patient Saf New Dir Altern Approaches (Vol 2 Cult Redesign) [Internet]. 2008;(May). Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21249886>
- 8) Walston SL, Al-Omar BA, Al-Mutari FA. Factors affecting the climate of hospital patient safety: A study of hospitals in Saudi Arabia. Int J Health Care Qual Assur. 2010;23(1):35–50.
- 9) El-Jardali F, Dimassi H, Jamal D, Jaafar M, Hemadeh N. Predictors and outcomes of patient safety culture in hospitals. BMC Health Serv Res [Internet]. 2011;11(1):45. Available from: <http://www.biomedcentral.com/1472-6963/11/45>

- 10) Wagner A, Hammer A, Manser T, Martus P, Sturm H, Rieger MA. Do occupational and patient safety culture in hospitals share predictors in the field of psychosocial working conditions? Findings from a cross-sectional study in German university hospitals. *Int J Environ Res Public Health*. 2018;15(10).
- 11) Pasinringi S, Fridawaty R. Budaya Keselamatan Pasien dan Kepuasan Kerja. Sultan I, Rezeki F, Nurfadhillah, Fitri A, editors. Makassar, Sulawesi Selatan: PT. Nas Media Indonesia; 2022.
- 12) Supartha W gede, Sintaasih DK. Pengantar perilaku Organisasi; Teori, kasus dan Aplikasi penelitian [Internet]. Universitas Udayana. 2017. 1–181 p. Available from: https://simdos.unud.ac.id/uploads/file_pendidikan_1_dir/b9ca64feeb1d962d5d06f51ea4d7577b.pdf
- 13) Kondalkar VG. Organizational Behaviour. Ansari Road D, editor. New Delhi: New Age International (P) Ltd., Publishers; 2007.
- 14) Schaufeli WB, Martínez IM, Pinto AM, Salanova M, Barker AB. Burnout and engagement in university students a cross-national study. *J Cross Cult Psychol*. 2002;33(5):464–81.
- 15) Reissová A, Papay M. Relationship between Employee Engagement, Job Satisfaction and Potential Turnover. *TEM J*. 2021;10(2):847–52.
- 16) Collier SL, Fitzpatrick JJ, Siedlecki SL, Dolansky MA. Employee Engagement and a Culture of Safety in the Intensive Care Unit. *J Nurs Adm*. 2016;46(1):49–54.
- 17) Maleki S, Fesharaki MG, Rabei N, Mohamadian M. Simultaneous effect of job burnout and job satisfaction on patient safety culture using path analysis in military healthcare personnel. *J Mil Med*. 2018;20(4):439–45.
- 18) Merino-Plaza MJ, Carrera-Hueso FJ, Roca-Castelló MR, Morro-Martín MD, Martínez-Asensi A, Fikri-Benbrahim N. Relationship between job satisfaction and patient safety culture. *Gac Sanit* [Internet]. 2018;32(4):352–61. Available from: <http://dx.doi.org/10.1016/j.gaceta.2017.02.009>
- 19) Dinius J, Philipp R, Ernstmann N, Heier L, Göritz AS, Pfisterer-Heise S, et al. Inter-professional teamwork and its association with patient safety in German hospitals-A cross sectional study. *PLoS One*. 2020;15(5):1–15.
- 20) Amarnah BH, Al Nobani F. The influence of physician-nurse collaboration on patient safety culture. *Heliyon* [Internet]. 2022;8(9):e10649. Available from: <https://doi.org/10.1016/j.heliyon.2022.e10649>
- 21) Orchard C, Pederson LL, Read E, Mahler C, Laschinger H. Assessment of Inter professional Team Collaboration Scale (AITCS): Further testing and instrument revision. *J Contin Educ Health Prof*. 2018;38(1):11–8.
- 22) Patima, Amiruddin R, Pasinringi SA, Salmah AU, Rivai F, Mallongi A, et al. AITCS as a Reliable Instrument for Evaluating IPC (Interprofessional Collaboration): A Systematic Review. *Syst Rev Pharm*. 2020;11(10):742–8.
- 23) Sorra J, Yount N, Famolaro T, Gray L. Hospital Survey on Patient Safety Culture Version 2.0 Spanish [Internet]. Vol. 19, Agency for Healthcare Research and Quality. 2021. 1–8 p. Available from: <https://www.ahrq.gov/sops/surveys/hospital/index.html>
- 24) Daugherty Biddison EL, Paine L, Murakami P, Herzke C, Weaver SJ. Associations between safety culture and employee engagement over time: A retrospective analysis. *BMJ Qual Saf*. 2016;25(1):31–7.
- 25) Janes G, Mills T, Budworth L, Johnson J, Lawton R. The Association between Health Care Staff Engagement and Patient Safety Outcomes: A Systematic Review and Meta-Analysis. *J Patient Saf*. 2021;17(3):207–16.
- 26) Scott G, Hogden A, Taylor R, Mauldon E. Exploring the impact of employee engagement and patient safety. *Int J Qual Heal care J Int Soc Qual Heal Care* [Internet]. 2022;34(3). Available from: <https://doi.org/https://doi.org/10.1093/intqhc/mzac059>
- 27) Syahrir PA, Fridawati R, Sari N. The Influence of Job Satisfaction on Patient Safety Culture in Makassar Hospitals. *Syst Rev Pharm*. 2020;11(11):1851–5.

- 28) Al-Surimi K, Almuhayshir A, Ghailan KY, Shaheen NA. Impact of Patient Safety Culture on Job Satisfaction and Intention to Leave Among Healthcare Workers: Evidence from Middle East Context. *Risk Manag Healthc Policy*. 2022;15(December):2435–51.
- 29) Kristensen TS, Borg V. Copenhagen Psychosocial Questionnaire. *Ment Health (Lond)*. 2003;5(5):5.
- 30) Nur NH, Pasinringi SA, Muis M. Influence Analysis in Leadership , Climate Teamwork , and Work Satisfaction on Patient Safety Culture of Nurses in Andi Makkasau Hospital Parepare City. 2019;0966(6):188–93.
- 31) Umar E, Hamdiah D, Sulastri T. Relationship Between Empowerment and Patient Safety Culture Among Nurses in Indonesia: A Cross Culture Study. *Malaysian J Med Heal Sci*. 2022;18(S17):280–5.
- 32) Dirik HF, Intepeler SS. The work environment and empowerment as predictors of patient safety culture in Turkey. *J Nurs Manag*. 2017;25(4):256–65.
- 33) Armellino D, Quinn Griffin MT, Fitzpatrick JJ. Structural empowerment and patient safety culture among registered nurses working in adult critical care units. *J Nurs Manag*. 2010;18(7):796–803.
- 34) Rizkia DG, Girsang AJ, Kusumapradja R, Hilmy MR, Pamungkas RA, Dewi S. the Effect of Interprofessional Collaboration and Transformational Leadership on Patient Safety With Work Motivation As Intervening Variables. *Riset*. 2022;4(2):039–53.
- 35) Kaiser L, Conrad S, Neugebauer EAM, Pietsch B, Pieper D. Interprofessional collaboration and patient-reported outcomes in inpatient care: a systematic review. *Syst Rev [Internet]*. 2022;11(1):1–25. Available from: <https://doi.org/10.1186/s13643-022-02027-x>
- 36) Noercahyo US, Maarif MS, Sumertajaya IM. the Role of Employee Engagement on Job Satisfaction and Its Effect on Organizational Performance. *J Apl Manaj*. 2021;19(2):296–309.
- 37) Hidayat WGPA. The Influence of Employee Engagement, Work Environment and Job Characteristics on Job Satisfaction and Performance. *JEMSI (Jurnal Ekon Manajemen, dan Akuntansi)*. 2023;9(4):1652–9.
- 38) Aziez A. the Effect of Employee Engagement on Employee Performance With Job Satisfaction and Compensation As Mediating Role. *J Soc Res*. 2022;1(3):221–30.
- 39) Lowe G. How employee engagement matters for hospital performance. *Healthc Q*. 2012;15(2):29–39.
- 40) Espinoza P, Peduzzi M, Agreli HF, Sutherland MA. Interprofessional team member's satisfaction: A mixed methods study of a Chilean hospital. *Hum Resour Health*. 2018;16(1):1–12.
- 41) Husien S, Mansour A, Hussain K, Al H, Hadi M, Garea A, et al. Impact Of Interprofessional Collaboration On Healthcare Workers ' Job Satisfaction. 2022;11(12):3683–9.
- 42) Akin GC, Olcay ZF, Yildirim M, Tasdemir DC, Yildiz A, Szarpak L, et al. Effects of Occupational Safety Performance on Work Engagement of Emergency Workers: Mediating Role of Job Satisfaction. *Disaster Emerg Med J*. 2024;9(1):23–35.
- 43) Mohammed F, Taddele M, Gualu T. Patient safety culture and associated factors among health care professionals at public hospitals in Dessie town, north east Ethiopia, 2019. *PLoS One [Internet]*. 2021;16(2 February):1–9. Available from: <http://dx.doi.org/10.1371/journal.pone.0245966>
- 44) Purnasiwi D, Jenie IM. Literature Review: Effect of Interprofessional Collaboration Implementation of Patient Services. *Indones J Occup Saf Heal*. 2021;10(2):265–72.
- 45) Körner M, Wirtz MA, Bengel J, Göritz AS. Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams Organization, structure and delivery of healthcare. *BMC Health Serv Res [Internet]*. 2015;15(1):1–12. Available from: <http://dx.doi.org/10.1186/s12913-015-0888-y>