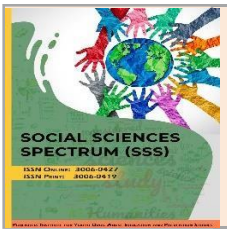

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Impact of Organizational Culture on Safety Performance: Exploring the Mediating Role of Safety Attitudes in Healthcare Sector

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Abstract

This study investigated the mediating role of safety attitudes in the relationship between organizational culture and safety performance among nurses. A cross-sectional quantitative design was used with purposive sampling, and data were gathered from 198 nurses working across five branches of Indus Hospital, Pakistan. Organizational culture was assessed using the Organizational Culture Assessment Questionnaire (OCAQ), safety attitudes were measured with the Safety Attitudes Questionnaire (SAQ), and safety performance was evaluated across four dimensions: safety compliance and safety participation (Griffin & Neal, 2000), as well as safety outcomes and employee satisfaction (Fernandez et al., 2009). Data analysis was conducted using SPSS 26, with mediation tested through Structural Equation Modeling (SEM). Findings indicated significant positive associations among organizational culture, safety attitudes, and safety performance. Organizational culture positively predicted both safety attitudes and safety performance, while safety attitudes significantly enhanced safety performance. Importantly, safety attitudes mediated the relationship between organizational culture and safety performance. These results emphasize the role of safety attitudes as psychological pathway through which organizational culture shapes safety outcomes. The study contributes to occupational health and safety literature by offering evidence from the nursing context and provides practical implications for healthcare management to strengthen safety culture and promote safer practices.

Keywords: Organizational Culture, Safety Attitudes, Safety Performance, Nursing, Indus Hospital.

Introduction

Nursing is a high-risk profession where nurses face hazardous and unpredictable environments. Within such settings, the organizational culture is crucial for shaping safety attitudes that foster safe practices, reduce errors, and improve performance (Harvey et al., 2010; Dickens et al., 2019). Safety attitudes further determine how employees perceive and prioritize safety in daily work (Wahid et al., 2024). Building on these perspectives, this study examines the mediating role of safety attitudes in the relationship between organizational culture and safety performance among nurses in Indus Hospital, Pakistan.

Organizational Culture

Culture is defined as *"the shared customs and beliefs of a particular group at a given time"* (Cambridge Dictionary). In organizations, it shapes how employees work, interact, and engage with each other (Groysberg et al., 2018). Weiner (2018) views culture as unique, evolving over time, guiding employee-organization alignment, and shaping the external identity. Schein (1992) described organizational culture as shared values, beliefs, and behaviors shaped by internal integration and external adaptation, the model widely cited in organizational studies (Bhuiyan et al., 2020). Culture influences communication and daily practices (Baird et al., 2018), is often resistant to change (Hardcopf et al., 2021) and may stress stability or adaptability (Groysberg et al., 2018). Overall, the organizational culture reflects collective beliefs and norms that unify members, shape decision-making, and create identity (Kava et al., 2018).

Organizational culture is shaped by internal factors such as structure, leadership, strategic goals, and mission (Korner et al., 2015). When coherent, it strengthens employee alignment, fosters shared purpose, and supports adaptation to the complex environments (Andres et al., 2019). Clearly communicated expectations enhance the motivation, collaboration, and overall success, while cultural analysis offers insights into outcomes such as job satisfaction, commitment, and quality improvement. Prior research links organizational culture to organizational change (Bagga & Kumar, 2025), turnover (Bortolotti et al., 2024), safety performance (Bwonya et al., 2020), and the environmental management (Baird et al., 2018). More recent studies highlight its role in shaping safety attitudes and safe practices (Carvalho et al., 2023) along with sustainability and digitalization (Isensee et al., 2020). Nonetheless, the gaps remain in synthesizing its key dimensions and orientations (Tadesse & Debela, 2024). In sum, organizational culture plays a central role in shaping the employee well-being and performance. Strong cultures build shared values, drive productivity, and promote safety whereas weak cultures contribute to strain and health risks. Building on this foundation, this study explores how organizational culture influences safety attitudes among nurses and ultimately their safety performance.

Safety Attitude

Workplace diversity and complex occupational tasks shape individual behavior, sometimes leading to unsafe actions and accidents (Aiken et al., 2011). An accident is "*an unplanned and unintentional sequence of events resulting from unsafe acts, unsafe conditions, or both, leading to adverse outcomes*" (Brauer, 2006). Hospitals are particularly high-risk settings, exposing nurses to hazards such as musculoskeletal injuries, slips, needle-stick injuries, and exposure to the contaminated materials (Raeissi et al., 2018). Nurse-related accidents account for about 5% of all work-related injuries and are a major cause of lost work-hours (Hoskins, 2009). Safety attitudes, defined as employees' beliefs and perceptions about safety practices, policies, and procedures

(Sexton et al., 2006) which are central to fostering a strong safety culture characterized by open reporting, management support, communication, and organizational learning (Lee et al., 2019). Weak safety cultures, marked by fear of reporting, restrict the learning and improvement (Ellis et al., 2020). Hospital safety culture, often referred to as safety climate, represents collective values, attitudes, and behaviors shaping organizational commitment to health and safety (Hogden et al., 2017). Safety attitudes are typically measured using Likert-type self-report scales or queationnaires (Ellis et al., 2020).

Industrialized countries emphasize accident prevention through the training, better conditions, and technology (Brattig et al., 2014). These measures remain incomplete without individual safety attitudes and organizational commitment which together shape safety culture (Zhang & Gao, 2012). In healthcare, patient safety culture has been influenced by the service orientation, cost control, professional norms, and provider attitudes (Nieva & Sorra, 2003) which playing a vital role in reducing occupational accidents among nurses (Mousavi, 2018). Safety attitudes strongly determine safe behaviors (Hong, 2015), when it supported by organizational systems, reinforce safety culture (Hammons, 2013). Measuring safety attitudes offers benchmark for organizational effectiveness (Singer et al., 2009) across six key dimensions: teamwork climate, safety climate, perceptions of management, job satisfaction, working conditions, and the stress recognition (Buljac-Samardzic et al., 2016). These dimensions' reveal system weaknesses, guide improvements, and reduce errors and injuries (Bondevik et al., 2014). Furthermore, directly linking to nurse injuries, patient safety (Taylor et al., 2012) and broader organizational outcomes such as cost, quality, and safety (Brewer, 2006). Thus, current study examines the mediating role of safety attitudes between organizational culture and safety performance among nurses in Indus Hospital.

Safety Performance

Occupational accidents cause hundreds of thousands of deaths and millions of illnesses worldwide while one in ten patients is harmed during acute hospital care (Hämäläinen et al., 2006). Patient and occupational safety remain major challenges with organizational climate, safety climate, and safety performance playing key roles (Ghahramani & Khalkhali, 2015). Yet, research on safety performance in acute care is limited, despite evidence that nontechnical skills such as teamwork, decision-making, error awareness, shape the safety outcomes (Meyers et al., 2019). Hospital staff face biological, chemical, physical, ergonomic, and psychosocial risks, from lifting patients to handling the infectious materials (Pramusiwi et al., 2024). Unsafe behaviors, often deviations from standards, cause over 80% of accidents while compliance reflects positive safety attitudes (Malakoutikhah et al., 2021). Thus, effective procedures are essential to reduce risks and ensure the safer workplaces (Arzahan et al., 2022).

Inadequate workplace safety exposes nurses to the psychological and physiological illnesses, accidents, stress, and reduced productivity (Wright et al., 2024). Ergonomic hazards from lifting and transferring patients often result in musculoskeletal disorders e.g., back pain, strains, and neck pain (Halim et al., 2024). Psychosocial risks including stress, fatigue, and anxiety/depression stem from long shifts and emotional demands of caring for critically ill patients (Chinene et al., 2023). Nurses also encounter biological hazards like tuberculosis, HIV/AIDS, hepatitis B/C, and needle-stick injuries (Takougang et al., 2023) along with physical risks such as cuts, pricks, and radiation (Mapuvire et al., 2022) and chemical risks from medical substances (Alhalwani et al., 2024). Safety performance defined as compliance with rules and active participation in safety practices

(Griffin & Neal, 2000) which shaped by safety climate, or shared perceptions of organizational safety commitment (Griffin & Curcuruto, 2016). Its measurement ranges from accident indices (Mearns et al., 2003) to safety behaviors and the employee satisfaction (Fernández-Muñiz et al., 2012).

Drawing on performance theory (Campbell et al., 1993), Griffin and Neal (2000) conceptualized safety behavior as compliance, adhering to standard operating procedures (SOPs) and personal protective equipment (PPE) use (Inness et al., 2010) and participation, involving voluntary actions such as supporting colleagues, promoting programs, and strengthening the initiatives (Neal & Bhasi, 2010). Compliance protects individual safety while participation builds safety culture and resilience (Griffin & Neal, 2000). Safety performance, though debated in definition and measurement, is widely viewed as a key indicator of the outcomes in high-risk sectors like healthcare (Liu et al., 2014). For nurses facing ergonomic, biological, psychosocial, chemical, and physical hazards, strong safety performance is vital for both the staff well-being and patient care. This study therefore investigates safety performance among nurses of healthcare setting.

Organizational Culture, Safety Attitude, and Safety Performance

Research shows that nurses' perceptions of the organizational culture strongly shape safety attitudes. Supportive, clan-oriented cultures foster positive behaviors whereas market-oriented cultures weaken those (Dickens et al., 2019). Management style, communication, responsibility and risk awareness also influence the safety mindsets (Harvey et al., 2004). Evidence from other sectors supports this link as in Vietnam's oil and gas industry, the strong cultures reduced errors and encouraged safety citizenship (Hien et al., 2024). In healthcare, psychosocial stress was found to undermine teamwork, satisfaction, and perceptions of the management, harming the safety attitudes and performance (Wahid et al., 2024). Organizational culture affects safety performance directly and indirectly. Safety culture reduces psychosocial hazards and enhances communication (Naji et al., 2021) while safety climate mediates leadership effects (Draghici et al., 2022), strengthens staff outcomes (Hwang et al., 2021), improves the reliability and lowers unintentional injuries (Liu et al., 2015). Collectively, these findings suggest safety attitudes indirectly mediate the relationship between organizational culture and safety performance. This study examines this pathway among nurses in five branches of the Indus Hospital: Lahore, Muzaffargarh, Multan, Badin, and Karachi.

Rationale of Research

This study is motivated by the need to understand the interplay between organizational culture, safety attitudes and safety performance within nursing staff of Pakistan's healthcare sector. Although workplace safety has received increasing attention but limited research has examined how these factors interact in unique cultural and organizational context of Pakistani hospitals. Investigating the influence of organizational culture on safety performance along with safety attitudes as a mediating factor, the current research addresses this critical gap and offers practical insights for improving safety performance/outcomes. Given that organizational culture shapes perceptions, behaviors, beliefs and decision-making of healthcare professionals (especially nurses) this research aims to provide evidence-based guidance for interventions/strategies that foster a positive safety culture/climate. By filling this gap, the study contributes to healthcare management and occupational safety literature. Furthermore, promoting the well-being of healthcare staff and enhancing overall patient safety in healthcare settings/contexts.

Research Hypotheses

1. There is a significant correlation between organizational culture, safety attitude, and safety performance among nurses.
2. Organizational culture significantly predicts safety performance among nurses.
3. Safety attitude partially mediate the relationship between organizational culture and safety performance among nurses.
4. Demographic variables demonstrate significant relationships with organizational culture, safety attitude, and safety performance among nurses.

Research Methodology

The present study investigated the mediating role of safety attitude in the relationship between organizational culture and safety performance among nurses working at Indus Hospital. To ensure the validity and reliability of the data and findings, a rigorous methodological framework was employed, as outlined below.

Research Design

The study was guided by a pragmatic philosophical paradigm, employing a methodological approach that moved from inductive to deductive reasoning. A correlational research design with a cross-sectional time horizon and mono-method strategy was adopted. Quantitative analyses, including descriptive statistics, correlation, regression, and mediation testing, were conducted to examine the proposed hypotheses and relationships among variables.

Participants and Procedure

The study sample comprised female nurses aged 20–60 years, employed at five branches of Indus Hospital (Lahore, Muzaffargarh, Multan, Badin, and Karachi, Pakistan). Eligibility required a BS Nursing degree, at least two years of hospital experience, and attendance at a minimum of two safety training sessions. Nurses in administrative or non-clinical roles, those on leave, or not actively involved in direct patient care were excluded. Using purposive sampling, 225 nurses were invited, and 198 valid responses were retained after screening, with 37 excluded due to incomplete or patterned responses. The sample size was determined with G*Power assuming a medium effect size, targeting 180 participants.

Approval was obtained from the Advanced Studies and Research Board of Superior University, Lahore, along with permissions from Indus Hospital management and scale authors. Data were collected via an online Google Form shared with eligible nurses, yielding a 91% response rate. Informed consent was secured, participants were assured confidentiality and the right to withdraw, and all ethical guidelines were strictly followed.

Instrument

Demographic Information Sheet

The demographic questionnaire included items on age, work experience, educational qualifications, number of safety trainings attended, occupational incidents experienced, and marital status.

Organizational Culture Assessment Questionnaire (OCAQ)

Organizational culture was assessed using the OCAQ (Sashkin & Rosenbach, 1996). The OCAQ evaluates five functional dimensions: managing change, achieving goals, coordinated teamwork, customer orientation, and cultural strength. It includes 30 items (six per dimension) rated on a 5-point Likert scale. Scores are standardized to identify organizational strengths and weaknesses, providing a diagnostic baseline. The instrument has demonstrated strong reliability, with Cronbach's alpha values typically above .70. An example item from the coordinated teamwork dimension is: *"People believe in working together collaboratively, preferring cooperation over competition."*

Safety Attitude Questionnaire (SAQ)

Safety attitudes were measured using the 36-item Safety Attitudes Questionnaire–Short Form (SAQ; Sexton et al., 2006). The SAQ assesses six dimensions: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions, and stress recognition. Items are rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The scale has shown strong internal consistency, with Cronbach's alpha values ranging from .81 to .89. A sample item is: *"Employees in this organization have a strong commitment to safety."*

Safety Performance Questionnaire

Safety performance was assessed across four dimensions. Safety compliance (3 items) and safety participation (5 items) were adapted from Griffin and Neal (2000), using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Safety outcomes (3 items) and employee satisfaction (3 items) were adapted from Fernandez et al. (2009), rated on a 5-point scale (1 = extremely dissatisfied to 5 = extremely satisfied). A sample item is: *"Employees consistently adhere to safety standards and procedures."*

Ethical Considerations

Ethical standards were strictly observed throughout the study. Informed consent was obtained from all participants, who were fully informed of the study's objectives, procedures, and their rights, including the option to withdraw at any stage without penalty. Participation was voluntary, and provisions were made to provide counseling support in case of psychological distress. A debriefing session was conducted after data collection to address concerns and clarify the study's purpose. Formal permission was obtained from the original authors and publishers to use all standardized instruments. Confidentiality and anonymity were maintained, and the data were used exclusively for academic and research purposes.

Results

This study investigated the effect of organizational culture on safety performance with safety attitude as a mediator. Descriptive statistics summarized participants' demographics while reliability tests, Spearman correlations, and regression analyses assessed variable relationships. Mediation was tested using the PROCESS macro for SPSS (Hayes et al., 2022) with $p < .05$ as significance threshold, and validated through Structural Equation Modeling (SEM) in AMOS.

Demographic Characteristics of Sample

Table 1: *Demographical-Characteristics of Sampled Nurses (N = 198)*

Variable	*f*	*%*
Age		
Below 30 years	158	79.80
Above 30 years	40	20.20
Experience		
Below 5 years	172	86.90
Above 5 years	26	13.10
Education		
BS Nursing	183	92.40
Above BS Nursing	15	7.60
District		
Lahore	27	13.60
Muzaffargarh	18	9.10
Multan	12	6.10
Badin	22	11.10
Karachi	119	60.10
Safety Trainings		
Below or Equal 5	162	80.80
Above 5	36	19.20
Occupational Incidents		
Below or Equal 10	171	86.40
Above 10	27	13.60
Marital Status		
Unmarried	111	56.10
Married	87	43.90

Note. % = percentage; f = frequency

Table 1 displays the demographic characteristics of the 198 nurses who participated in study. These were including their age, work experience, education, number of safety trainings attended, history of occupational incidents and marital-status. The majority of nurses (79.80%) were under 30-years of age and 86.9% had less than five years of work-experience. Most participants (92.40%) held a Bachelor of Science in Nursing (BSN) degree. Furthermore, 80.8% had completed fewer than five

safety training sessions and 86.4% had experienced fewer than ten safety-related occupational incidents. In terms of marital status, the majority of nurses (56.1%) were unmarried, while most of the participants were from Karachi (60.1%).

Descriptive and reliability analyses were performed to assess key statistical properties of the study measures. These were including number of items per scale, mean-scores, standard-deviations, actual/potential score ranges, and Cronbach's alpha coefficients. These results summarizing the characteristics and internal consistency of scales used to measure the key constructs of study, presented in Table 2.

Table 2: *Questionnaire's Cronbach Alpha-OCAQ, SPQ, and SAQ*

Variables	***k***	***M(SD)***	***Range***		***A***
			Actual	***Potential***	
OCAQ	30	119.21(13.10)	84-150	30-150	.92
SAQ	36	146.25(15.89)	103-179	36-180	.94
SPQ	14	55.85(6.29)	42-70	14-70	.87

Note. k = no. of items; α = reliability; M = mean; SD = standard deviation; OCAQ = organizational culture assessment questionnaire; SPQ = safety performance questionnaire; SAQ = safety attitude questionnaire

As presented in Table 2, all study instruments demonstrated high internal consistency: e.g., OCAQ (α = .92), the SAQ (α = .94), and the SPQ (α = .87). These reliability coefficients exceed the commonly accepted threshold of .70 (Nunnally, 1978). Results indicating strong psychometric properties and supporting suitability of these measures for examining OC, safety attitudes, and safety-related outcomes/performance among nurses.

To examine the relationships between categorical demographic variables and continuous study variables, the Spearman's correlation analysis was conducted. The results are presented in Table 3.

Table 3: *Correlation's Results for Demographics, Cognitive Appraisal, Coping Strategies, Teamwork, and Occupational Stress*

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8	9
1 Age	198	1.17	.38	-	.58***	.57***	.29***	-.13	.52***	-.16***	-.14	-.12
2 Experience	198	1.11	.32		-	.74***	.46***	-.15*	.44***	-.12	-.09	-.10
3 Education	198	1.05	.21			-	.15*	-.11	.32***	-.20**	-.12	-.15*
4 Safety Trainings	198	1.18	.39				-	-.12	.27***	.05	.02	.04
5 Occu. Incidents	198	1.15	.36					-	-.09	-.01	-.05	.03
6 Marital Status	198	1.42	.49						-	-.03	-.01	-.03
7 OCAQ	198	119.27	13.05							-	.81***	.72***
8 SAQ	198	55.76	6.29								-	.78***
9 SPQ	198	145.96	16.22									-

*Note. *p<.05, **p<.01, ***p<.001*; *N* = number of participants; *M* = mean; *SD* = standard deviation; OCAQ = organizational culture assessment questionnaire; SAQ = safety attitude questionnaire; SPQ = safety performance questionnaire

Spearman's rho analyses were conducted to examine the associations between categorical demographic variables (e.g., age, education, experience, number of safety trainings, occupational incidents and marital status) and continuous study variables (i.e., organizational culture, safety attitude, and safety performance). The results revealed a significant age-related pattern: nurses under 30 years of age scored lower on organizational culture ($\rho = -.16$, $p < .001$) while no significant associations were found among age, safety attitudes, and safety performance. Similarly, educational background showed a significant trend. The nurses holding a BS Nursing degree reporting lower scores on organizational culture ($\rho = -.23$, $p < .001$) and safety performance ($\rho = -.14$, $p < .001$) but no significant relationship was observed with safety attitude.

No significant associations were found among number of safety trainings, occupational incidents, marital status and the main study variables. Importantly, organizational culture was strongly and positively correlated with both safety attitudes ($\rho = .81$, $p < .001$) and safety performance ($\rho = .72$, $p < .001$). Additionally, safety attitude showed a strong positive association with safety performance ($\rho = .78$, $p < .001$).

To assess the predictive influence of organizational culture on safety attitude, a simple linear regression analysis was performed using data from 198 nurses. The findings are summarized in Table 4.

Table 4: *Linear Regression coefficient of Organizational Culture on Safety Attitudes*

Variable	***B***	***B***	***SE***
Constant	34.58***		6.60
Organizational Culture	.94***	.77***	.06
R^2	.59***		

Note. ***p<.001; B = unstandardized coefficient; β = standardized coefficient; SE = standard error

Table 4 presents the regression results showing the impact of organizational culture on safety attitudes. The Durbin-Watson value was 1.86 which falls within the acceptable range (1.5-2.5) and indicating no serious issue of autocorrelation in residuals and ensuring the reliability of regression model. The R^2 value of .59 indicated that organizational culture accounted for 59% of variance in safety attitudes, $F(1,196) = 289.12$, $p < .001$. Moreover, the regression coefficient confirmed that organizational culture significantly and positively predicted safety attitudes ($\beta = .77$, $p < .001$). This finding suggests that stronger organizational culture is associated with the more favorable safety attitudes among nurses.

To examine the combined predictive role of organizational culture and safety attitudes on safety performance, a multiple hierarchical linear regression analysis was performed using the data collected from 198 nurses. The results of this analysis are summarized in Table 5.

Table 5: *Multiple Linear Regression Results of Organizational Culture and Safety Attitudes for Safety Performance among Nurses*

Variable	*B*	*95% CI*		*SE B*	*β*	R^2	ΔR^2
		LL	*UL*				
Step 1						.52***	.52***
Constant	14.56***	8.93	20.20	2.86			
Organizational Culture	.35***	.30	.39	.02	.72***		
Step 2						.61***	.09***
Constant	7.95***	2.55	13.36	2.74			
Organizational Culture	.17***	0.48	.10	.23	.35***		
Safety Attitudes	.19***	0.26	.14	.25	.48***		

Note. ***p<.001; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; B = unstandardized coefficients; β = standardized coefficient; SE B = standard error of unstandardized coefficient; R2 = coefficient of determinant; ΔR2 = change in R2

Table 5 presents the hierarchical regression results examining the impact of organizational culture and safety attitudes on safety performance among nurses. In Step 1, organizational culture alone significantly predicted safety performance, with an R^2 value of .52, indicating that it explained 52% of the variance in safety performance, $F(1,196) = 211.54$, $p < .001$. The standardized beta coefficient confirmed a strong positive prediction ($\beta = .72$, $p < .001$).

In Step 2, when safety attitudes were added to the model, the R^2 value increased to .61, showing that organizational culture and safety attitudes together accounted for 61% of the variance in safety performance, $F(2,195) = 154.49$, $p < .001$. Both organizational culture ($\beta = .35$, $p < .001$) and safety attitudes ($\beta = .48$, $p < .001$) emerged as significant positive predictors. The change in explained variance ($\Delta R^2 = .09$) indicated that safety attitudes contributed an additional 9% to the prediction of safety performance beyond organizational culture, $F(1,197) = 47.39$, $p < .001$.

The Durbin–Watson statistic (1.88) fell within the acceptable range, suggesting that the assumption of independence of residuals was met, thereby supporting the robustness of the regression results.

Mediation Analysis

The mediation analysis was conducted to examine whether safety attitude mediates the relationship between organizational culture and safety performance. Hayes' (2012) PROCESS macro (Model 4) with 5,000 bootstrap samples and a 95% confidence interval utilized during mediation analysis. The bootstrap analysis revealed a significant indirect effect which suggesting that safety attitude plays a meaningful mediating role in explaining variance in safety performance. The detailed results of the mediation analysis are presented in Table 6.

Table 6: *Regression Coefficients, Standard Errors, and Model Summary Information for the Organizational Culture, Safety Attitude, and Safety Performance*

Antecedents		Consequent						
		M (Safety Attitude)				Y (Safety Performance)		
		Coeff.	*SE*	*P*		Coeff.	*SE*	*P*
X (Organizational Culture)	a	.95	.06	.00	c′	.16	.03	.00
M1 (Safety Attitude)		-	-	-	B	.19	.03	.00
Age	f_1	-.64	2.50	.80	g_1	.87	.97	.37
Experience	f_2	1.28	3.84	.74	g_2	.59	1.36	.68
Education	f_3	3.99	4.47	.37	g_3	*-2.44*	*1.48*	*.16*
Safety Trainings	f_4	-1.22	2.20	.58	g_4	*.22*	*1.72*	*.79*
Occupational Incidents	f_5	-1.39	2.15	.51	g_5	*.79*	*.85*	*.34*
Marital Status	f_6	-.88	1.75	.61	g_6	*.78*	*.83*	*.25*
Constant	i_1	31.82	9.03	.00	i_2	6.49	3.59	.07
		R^2= .60				R^2= .63		
		$F(7,190)$= 41.22, p<.001				$F(8,189)$= 39.48, p<.001		

Note. Coeff = standardized regression coefficient; SE = standard error; M = mediator; X = independent variable; Y = dependent variable

Table 7 presents the unstandardized total, direct, and indirect effects of organizational culture on safety performance through safety attitude as mediator.

Table 7: *Unstandardized Effects for Mediation Analysis*

Path	*B*	SE	95% CI (LL–UL)	*P*
Total Effect (c) of X on Y	**.35**	.03	.30, .40	< .001
Direct Effect (c') of X on Y	**.16**	.04	.09, .23	< .001
Indirect Effects (a x b)				
OC>SA>SP	**.19**	.03	.13, .25	<.001

Note. B = unstandardized regression coefficient; SE = standard error; CI = confidence interval; LL = lower limit; UL = upper limit; p = level of significance; OC = organizational culture; SA = safety attitude; SP = safety performance

Results in Table 7 revealed total effect of organizational culture on safety performance was significant (B = .35, 95% CI [.29, .39], p< .001). The direct effect remained significant (B = .17, 95% CI [.10, .23], p< .001) accounting for 48.57% of the total effect. The indirect effect via safety attitude was also significant (B = .18, 95% CI [.13, .24], p< .001) representing 51.43% of the total

effect. These results indicate that organizational culture impacts safety performance both directly and indirectly with safety attitude serving as a substantial mediator.

Mediation analysis was also conducted using Analysis of Moment Analysis (AMOS) through Structural Equation Modeling (SEM) to assess standardized total, direct, and indirect effects of organizational culture on safety performance through safety attitudes. The purpose was also reconfirming the findings in form of unstandardized effects through Process Macro. Demographic variables were excluded from path diagram because results of Spearman correlation along with PROCESS mediation analyses were showed no significant associations between these variables and key study constructs. The AMOS results confirmed the unstandardized coefficients for the total, direct, and indirect effects. These findings were aligning with the findings obtained through the SPSS PROCESS macro. The standardized coefficients and the structural model diagram are presented below.

Figure 2: *Structural Equational Model for Mediation Analysis*

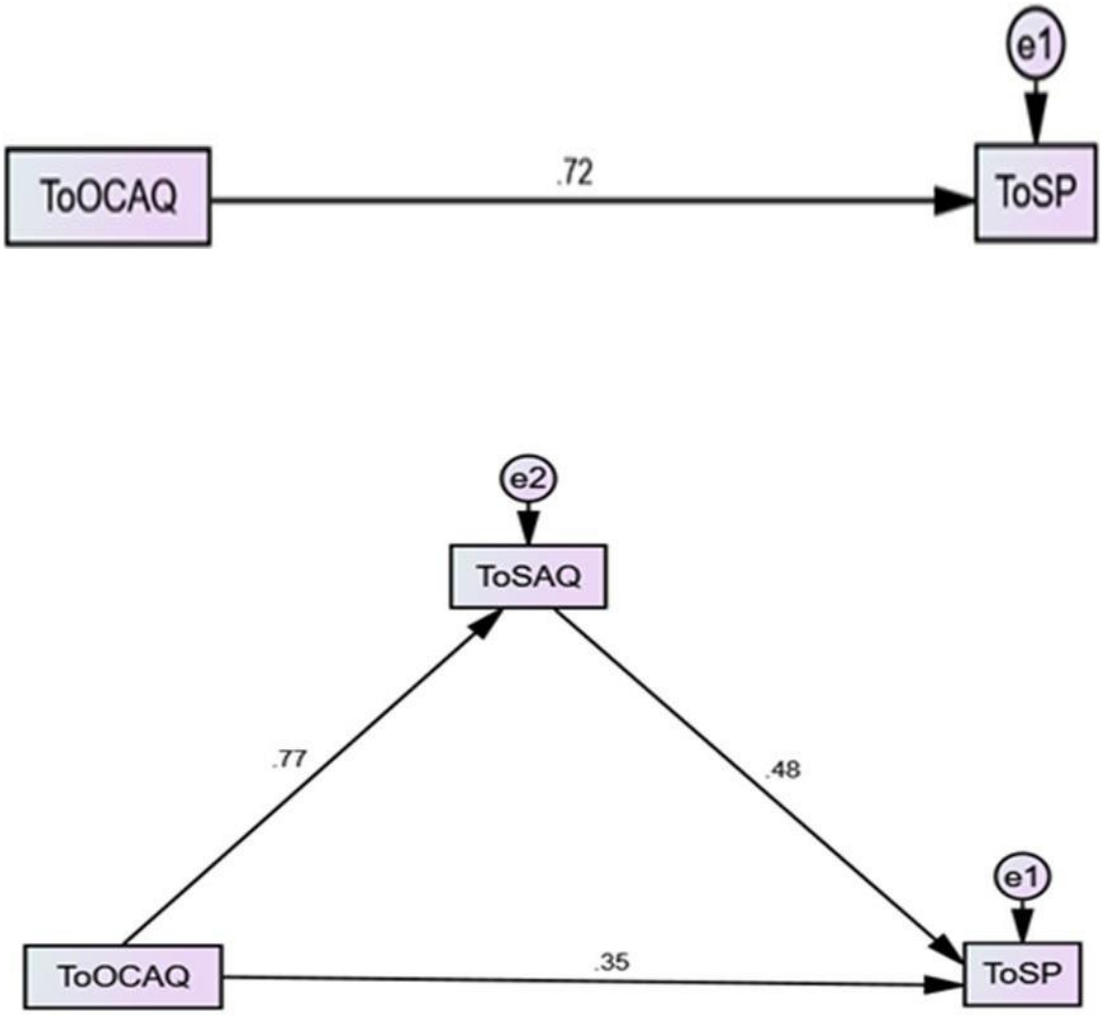

Table 8: *Standardized Effects of Mediation Analysis*

Path	***B***	***p*-Value**	**Result**
Total Effect	.72	.001	Significant Impact
Direct Effect	.35	.000	Significant Impact
Indirect Effects	.37	.001	Significant Impact

Note. β = standardized regression coefficient; p = level of significance

As shown in Table 8, the standardized total effect of organizational culture on safety performance was significant (β = .72, p< .001). The standardized direct effect also remained significant (β = .35, p< .001) accounting for 48.60% of the total effect. The standardized indirect effect through safety attitude was significant as well (β = .37, p< .001) representing 51.40% of total effect. These findings reaffirm that organizational culture influences safety performance through both direct and indirect pathways with safety attitude functioning as a substantial mediator.

Discussion

This study explored how safety attitudes mediate the link between organizational culture and safety performance among nurses. Results supported the first hypothesis: organizational culture positively influenced both safety attitudes and safety performance while safety attitudes themselves directly predicted performance. These findings align with prior work showing that culture shapes safety values and behaviors (Dickens et al., 2019; Hien et al., 2024) and that positive attitudes translate the culture into better outcomes through teamwork, job satisfaction, and trust in management (Wahid et al., 2024; Hwang et al., 2021). Evidence from healthcare similarly highlights culture as central to patient safety and error reduction (Alanazi et al., 2021; Samaei et al., 2015) with reviews emphasizing its role in sustaining safety performance (Arzahan et al., 2020; Mashi et al., 2021). By confirming these dynamics, this study extends existing knowledge to healthcare where cultural influences on safety outcomes remain underexplored.

The second hypothesis proposed that organizational culture predicts both safety attitudes and safety performance with safety attitudes further influencing performance. Regression results supported this, confirming organizational culture as a strong predictor of safety outcomes and safety attitudes as a key driver of the performance. These findings align with prior evidence that supportive culture encourage safer behaviors and reduce risks (Naji et al., 2021; Hien et al., 2024; Hwang et al., 2021). In healthcare, similar studies show that organizational culture directly shapes patient safety culture, clinical outcomes, and the workplace safety (Alanazi et al., 2021; Samaei et al., 2015). Reviews also highlight the culture as a long-term determinant of safety performance (Arzahan et al., 2020; Mashi et al., 2021). Taken together, results underscore the central role of organizational culture in promoting safety through leadership, communication, and teamwork, extending its predictive value to nursing practice in resource-limited contexts like Pakistan.

The third hypothesis suggested that safety attitudes mediate the link between organizational culture and the safety performance. Mediation analysis using SPSS and SEM confirmed it, showing that culture enhances performance partly by fostering positive safety attitudes. This supports prior evidence that culture shapes outcomes indirectly through the communication, psychosocial well-being, and safety climate (Draghici et al., 2022). In healthcare, culture promotes teamwork, risk awareness, and safe practices, thereby improving the performance (Wahid et al., 2024; Hwang et

al., 2021). Other studies similarly show that culture creates conditions where attitudes drive safer behaviors, reduce errors (Hien et al., 2024), improve patient outcomes (Alanazi et al., 2021), and also lower workplace accidents (Samaei et al., 2015). Reviews confirm that culture-driven attitudes are essential for translating the organizational support into measurable safety outcomes (Arzahan et al., 2020; Mashi et al., 2021). By revealing partial mediation, this study highlights that culture alone is not enough. Its influence must be internalized through attitudes, extending findings from the high-risk industries (Harvey et al., 2010; Dickens et al., 2019 to healthcare.

The fourth hypothesis predicted that demographics would relate to the organizational culture, safety attitudes, and safety performance. Spearman's rho analyses offered partial support, showing age and education as significant. Younger nurses (<30 years) scored lower on organizational culture, suggesting that limited tenure may reduce positive views of norms and support, echoing evidence that experience strengthens safety behavior (Samaei et al., 2015; Alanazi et al., 2021). Education also mattered as BS Nursing graduates reported lower scores on culture and safety performance than those with higher qualifications. The results consistent with studies showing advanced education enhances awareness, critical thinking, and adherence to safe working practices (Arzahan et al., 2020; Mashi et al., 2021). By contrast, safety trainings, prior incidents, and marital status were nonsignificant. Results differing from findings in high-risk industries like oil, gas, and construction settings where these factors predict safety outcomes (Harvey et al., 2010; Dickens et al., 2019). Overall, results highlight age and education as key demographic influences on nurses' safety perceptions and pointing to the need for targeted support for the younger and less-educated staff.

This study shows that organizational culture enhances safety performance directly and through safety attitudes while age and education also shape outcomes. These findings highlight the need for context-specific strategies that strengthen both organizational systems and individual capacities to improve the safety performance and patient care among nurses.

Practical Implications

The findings provide practical guidance for the healthcare administrators and policymakers. Hospitals should foster a strong organizational culture that prioritizes safety through open communication, teamwork and managerial support. Interventions must also strengthen nurses' safety attitudes via training, mentorship, and programs that promote the risk awareness and adherence to protocols. Tailored strategies for younger and less-educated staff nurses are essential to ensure equitable engagement. Integrating cultural transformation with attitude enhancement can improve safety performance, reduce occupational risks, and ultimately ensure safer patient care in hospitals.

Strength and Limitations

This study offers important strengths, including addressing a novel research gap by examining the mediating role of safety attitudes between organizational culture and safety performance in healthcare with an adequate sample size ensuring reliable analyses. However, its cross-sectional design limits causal inference, and exclusive focus on nurses from Indus Hospital, primarily from the Karachi branch. It reduces generalizability and prevented district-wise comparisons due to imbalanced sample. Moreover, use of original English versions of questionnaires rather than contextually adapted tools may have influenced measurement validity. Despite these limitations,

the study provides a valuable foundation for future research and highlighting the need for longitudinal or multi-site designs and context-specific measures to build on these findings.

Conclusion

This study demonstrates that organizational culture significantly influences nurses' safety performance both directly and indirectly through safety attitudes. Age and education further shaped safety perceptions, highlighting need for workforce-specific interventions. While limited by its cross-sectional design and single-institution sample, this study extends evidence from high-risk industries to healthcare setting. The findings underscore the importance of integrating cultural transformation with attitude enhancement to strengthen the safety performance and reduce occupation related injuries

Conflict of Interest

The author declares no conflict of interest.

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