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ENHANCING EMPLOYEE RETENTION THROUGH PSYCHOLOGICAL SAFETY AND OHS TRAINING PROGRAMS: EXPLORING THE ROLE OF WORKPLACE SAFETY CULTURE

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ABSTRACT

The issue of employee turnover continues to be a problem for organizations due to the stiff talent competition by various organizations. This research examines the effect of OHS training proliferation, psychological safety climate, and workplace safety perceptions on engagement and retention among textile industry employees. Building on the Conservation Resource (COR) theory, the study tries to understand how psychological safety affects the interaction between OHS training and employee results, assuming workplace safety culture as a moderator. Cross-sectional self-report questionnaires were collected from 250 staff members employed in textile manufacturing organizations in Pakistan, and the data were analyzed through regression, mediation, and moderation. The study shows that OHS training programs improve organizational commitment and reduce turnover intentions, with psychological safety as the critical moderator. Thirdly, the results demonstrate that workplace safety culture partially mediates the association between OHS training and PS, and the moderation effect of safety culture was significant for LSC organizations. These results have major implications for the appreciation and improvement of the ASC promoting a positive safety culture, as well as the provision of systematic OHS training programs that can better retain employees and create a more motivated, low-turnover workforce. The findings of this study are subsequently linked to the existing literature, where both theory and practice implications are examined as well as future research directions are proposed.

Keywords: *Employee retention, Occupational Health and Safety (OHS) training, psychological safety, workplace safety culture, employee engagement.*

1.1 Introduction

The main challenge of organizations today includes employee turnover in organizations when organizations face competition in the market. This is because high employee turnover is another issue that organizations are under pressure to combat due to costs, reduced productivity, and loss of competitive advantage (Duryan.et.al,2020). However, various approaches towards the improvement of retention rates still need to be improved for many organizations, which cannot guarantee a stable employee population (Zhang et al., 2020). The absence of adequate workplace safety mainly refers to the psychological safety felt by employees in the workplace environment. This combines the fundamental aspect of Edmondson's (1999) definition of psychological safety as the degree to

which individuals believe that they can share ideas and opinions without being criticized or punished(Claxton.et.al,2022). People who are able to work in a climate of psychological safety are able to thrive, think creatively, and help the organization build its future (Frazier et al., 2021).

Apart from psychological safety, other parts of OHS training will act significantly on employee well-being by minimizing risks and cultivating a safety culture (Silva et al., 2020). OHS programs are intended to establish safe work conditions through the input of knowledge and relevant skills that will enable the workforce to evaluate risks and prevent them in the future Neal & Griffin (2021). Effective OHS program improves employees' confidence that the organization is serious and committed to their safety in manners of physical harm, which is a complementary way of ensuring that the organization retains its employees (Lingard et al., 2022). The relationship between psychological safety and OHS training questions is fundamental since psychological safety influences the combination of employee health, fulfillment, and productivity (Kim et al., 2020).

The current generation of workers exercises a high employee turnover; employees frequently change employers in search of better working conditions, more pay, or a better workplace (Gillen et al., 2020). It is also expensive for organizations to turn over their employees often because recruitment and training are expensive, as well as the loss of institutional memory and interruption of work by dedicated staff (Park & Hong, 2020). For this reason, the task of maintaining highly qualified and experienced workers has now become one of the most crucial issues of human resource management today(Rozaq, 2022)..

Employer engagement is one of the most significant retention strategies and it is majorly determined by psychological safety (Schein, 2020). Workers who are allowed to speak freely without being laughed at, belittled, or punished by their superiors and colleagues are more likely to remain interested in their work and loyal to their employer (Porath & Pearson, 2021). On the other hand, the hostile work climate environment, including perceived workplace safety and organizational support, leads to Stress, work burnout, and employee turnover (Saksvik et al., 2021).

Moreover, the physical security of employees should also be considered. It is intended that OHS training addresses the fact that all employees must be familiar with potential hazards on the Job in order to minimize the risk of accidents or injury (Vinodkumar & Bhasi, 2020). Suppose organizations create a culture that will support the health of their workers. In that case, the performance of workplaces will be boosted in many ways since there will be a high level of satisfaction and retention of human resources (Silva et al., 2020).

This research responds to the immense issue of employee turnover by analyzing how psychological safety and OHS training programs help to build a supportive organizational culture (Frazier et al., 2021). This study offers timely ideas for how these factors interact in influencing employee turnover as organizations continue to address both physical security issues during the recovery from the COVID-19 pandemic (Kiviat, 2021).

The significance of encouraging psychological safety is a part of organizational culture, in which employees feel recognized, appreciated, and respected (Neal & Griffin, 2021). It also highlights a problem with training processes for OHS and risk prevention that often needs a broad understanding of culture and health priorities and measures (Nembhard & Edmondson, 2020). It is only when the total effect of these two elements is realized that organizations can design better retention strategies, which is essential given the high turnover in most firms (Newman et al., 2021).

Despite the increased interest in exploring various antecedents of engagement like psychological safety and OHS training programs, there seems to be a need for more research on how these constructs interact to impact organizational employees' turnover intentions (Lingard et al., 2022). Prior studies have explored psychological safety as a single concept, the Influence of which was made concerning Team

innovation, internal collaboration, and dynamics (Edmondson, 1999; Luo & Shen, 2021). Consequently, literature focusing on OHS training programs has focused on the effects of these programs in the areas of decreasing workplace accidents and promoting compliance with safety rules and legislations (Nielsen & Mearns, 2019). Nevertheless, limited research has applied psychological and physical safety to construct a sustainable framework for employee retention (Silva et al., 2020).

Furthermore, the majorities of the previous studies are industry-oriented and most prominently concern high-risk sectors like construction, healthcare, or manufacturing (Lingard et al., 2022). To date, there is scarce literature concerning the way in which psychological safety and OHS training programs influence retention generally, yet specifically in sectors involving servicing or technology, where the kind of work could be pretty varied. However, the imperviousness of the working environment remains indisputable (Kline & Frone, 2019). This research intends to address the following gap: Currently, there needs to be more research comparing how these factors influence employee retention across varying organizational environments (Neal & Griffin, 2021). Employee turnover is a top concern for organizations, Although numerous factors have been identified to affect turnover, the symbiotic effects of psychological safety and OHS training for the creation of a safe organizational climate have yet to be thoroughly studied (Zohar & Polachek, 2022; Zhang et al., 2020).

Lack of psychological safety at the workplace causes disengagement, Stress, and turnover because workers feel unsafe contributing to matters affecting them without being punished (Aman-Ullah.et.al,2022). On the other hand, cooperative groups that enhance psychological safety enjoy more significant levels of staff participation, satisfaction, and retention at work (Hu & Liden, 2022). Similarly, OHS training that enables employees to acquire a safety culture training intervention is paramount to creating a safe environment for individuals to work in (Silva et al., 2020). They also can increase the level of trust of the employees in the organizational concern towards them, adding to overall retention (Gillen et al., 2020).

However, a relationship between psychological safety and OHS training programs, more specifically between these two variables, has yet to be investigated comprehensively. It becomes essential to understand how organizations can foster both psychological and physical safety, thereby easing the problem of employee turnover (Tetzlaff.et.al, 2021). This paper seeks to establish how these two factors interact and affect employee retention based on varied organizational settings (Neal & Griffin, 2021).

2. Literature Review

OHS training programs are very crucial in increasing workplace safety and participation and, therefore, reducing employee turnover. OHS training involves ensuring that employees possess adequate knowledge and skills to aspirate to handle danger-free practices in their workplace environment and the development of a safety-sensitive culture in the organization's workplace environment (Bayram.et.al, 2022). OHS programs have expanded their parameters in recent years and encompass psychological safety as one of the inherently essential aspects, as psychological conditions constitute a part of preconditions for the safety and satisfaction of employees in their work (Silva et al., 2020; Lingard et al., 2022). In this review, the aspects of OHS training programs, employee engagement, and retention are analyzed while testing for the mediating role of psychological safety and the moderating role of workplace safety culture (Dong& Li, 2024). The following vital hypotheses of the literature are also presented and analyzed to lay background knowledge on how organizations ought to optimize benefits to employees through OHS promotion strategies.

2.1OHS Training Programs and Employee Engagement (EE).

The OHS training programs assist employees in gaining the right skills and knowledge required to avoid workplace hazards and enhance safe working conditions in ways that help escalate the

levels of employee commitment. Cross-sectional studies reveal that employees with protection and training promotion are more likely to interact with the work because the organization seems to be committed to their safety (Silva et al., 2020; Neal & Griffin, 2021). They increase the level of security and commitment of the employees to their workplace besides promoting engagement, as found by Frazier et al. (2021).

If employees get proper safety training, they get a sense of security that makes them to be active. In this way, they will be safe from getting injured or unsure whether they are proceeding with the proper measures or not while working (Weaver.et.al, 2023). OHS training also passes information to the employees that the organization has a vested interest in its employees, and this gives credence to emotional commitment, hence increasing engagement (Amfo-Antiri, 2023). . Lack of implementing protective measures can also lead to employees developing a lack of interest in their duties due to Stress or being wary of dangers that exist in place of work.

Data derived from the Conservation of Resources (COR) theory by Hobfoll (1989) reveals that people will attempt to gain resources that include safety and well-being. Employees need these critical resources – and OHS training gives them these by minimizing the risk of an incident and promoting safety. Thus, actual staff participation increases because the employees do not spend much energy being anxious about possible risks. Therefore, OHS training enhances employee commitment by guaranteeing the safeguard of this prerequisite requirement: safety.

*H1: **OHS training programs are positively associated with employee engagement.***

*2.2*OHS Training Programs and Employee Retention (ER)

OHS training programs have another function of retaining employees as well in organizations. The reasons organizational safety training lowers turnover include making workers feel safe and appreciated (Park & Hong, 2020; Gillen et al., 2020). Training provided to OHS reduces workplace hazards hence fewer accidents and injuries, and there will be improved Job satisfaction. In the results, we found that manufacturing employees who believe that their organization values employees' safety are likely to stay at their workplace because safety is a significant factor influencing retention (Neal & Griffin, 2021).

A rational employee would not want to work in an organization that does not meet their workplace safety standards. When the employees of an organization think that their employers value their lives both physically and psychologically due to excellent and adequate OHS training, then they will not look for other organizations to work in(Bathan & Joy,2023).. On the other hand, fragile safety measures or the complete absence of safety training or working conditions can lead diverse employees to search for safer organizational positions and, hence, cause turnover (Fan.et.al, 2020).

Based on the COR theory, employees are willing to stick to organizational settings where their resources are safeguarded. In fact, OHS training programs provide employees with essential tools like safety and information that enable them to work around prospective risks. By protecting these valuables, organizations ensure that such people do not go seek better protection elsewhere or change jobs. This conservation of safety as a resource helps facilitate longer-term retention because employees value organizations that ensure their safety.

H2**: OHS training programs are positively associated with employee retention.**

2.3Psychological Safety (PS) as a Mediator between OHS Training Programs and Employee Engagement

Psychological safety is the ability of an employee to raise concerns and voice their opinions to management and others without repercussions, which is essential to engage employees. Psychological safety in OHS training allows freedom of voice at the workplace and, hence, increases the participation of employees in organizational tasks (Edmondson & Roloff, 2009; Schein, 2020). Psychological safety fosters suggestions and investment in work activities

since employees perceive that their employer will protect those (Frazier et al., 2021).

Psychological safety is also crucial for retaining the vital forces of a company. The rationale behind psychological safety discussion is that when employees feel safe in an organization to report their issues and seek help without risking punishment (Edmondson, 1999; Porath & Pearson, 2021). Psychologically safe OHST training programs increase communication and limit Stress levels among the employees, and hence contribute to their retention (Hu & Liden, 2022).

Employing the theoretical framework of psychological safety as a mediator, the current study gauges the impact of effective OHS Training programs on engagement mechanisms. Additionally, other safety courses being taken form part of this safety as it create the structure of safety within the organization. With psychological safety, people participate more in their work, and organizational relationships improve; hence, there is higher engagement (Lari, 2024).

In other words, the research confirms that psychological safety explains the relationship between OHS training programs and employee retention (Lal, 2022). OHS training enables personnel to adopt appropriate approaches to performing their tasks without exposing themselves or others to harm. In contrast, psychological safety enables employees to reason that their organization has their back. This keeps the workers happy and bonded to the organization since they will not look for other organizations that can protect them from both harm and emotional downing (Essoun-Mensah, 2022).

In the context of the protection of valuable resources within the framework of COR theory, psychological safety is viewed as a particular interest of the employees. Through OHS training programs organization offer physical and psychological resources to its employees, and, thus, employees feel more secure. Psychological safety, thus, enables employees to perform their tasks with the head clear that no consequence, unfavorable as it may be, will be experienced. Therefore, the current study postulates that psychological safety acts as a moderator through which organizational resources provided by OHS training enhance employees' level of engagement.

On the other hand people need to protect the psychological capital they possess, including being emotionally secured. It draws employees' loyalty because Psych safety as a resource delivered through the OHS training programs takes away the psychological risks in an organization. If people feel psychologically safe then they will not burnout or stressed and can continue in their jobs and maintain their emotional capital.

H3A**: Psychological safety mediates the positive relationship between OHS training programs and employee engagement.**

H3B**: Psychological safety mediates the positive relationship between OHS training programs and employee retention.**

2.4Workplace Safety Culture as a Moderator (WSC).

Organizational safety culture may be defined as the overall perception that an organization and its employees uphold with regard to safety. A positive safety culture supports and strengthens lessons, enhancing safety consciousness within OHS training programs and guaranteeing that the entire firm and team embrace safety at all levels (Zohar & Polachek, 2022). The case studies of this system have revealed that a comprehensive safety culture enhances the attitudes toward OHS training and minimizes the risks relating to the workplace (Lingard et al., 2022).

Thus, the present study argues that workplace safety culture plays a mediating role in the relationship between an organization's OHS training programs and psychological safety by emphasizing safety values in the workplace (Pham,Lingard, & Zhang,2023).. Practical safety management in organizations that emphasize a shared safety culture would also improve the employee's psychological safety by embracing the lessons offered by OHS training. If safety culture is negative, then the utility of OHS training may not be much felt because the people working may not view safety as an organizational value (Ajmal.et.al, 2022).

From the perspective of the COR theory, then, WSC is an organizational resource that supplements individual resources of safety and psychological well-being that the OHS training delivers. In safety-oriented organizations, employees' sources of psychological safety are constantly validated, which means that safety is always actively supported. It helps to moderate the impact of maintaining and utilizing the resources provided by OHS training to have a psychologically safe environment.

H4: Workplace safety culture moderates the relationship between OHS training programs and psychological safety.

This review underscores the value of OHS training programs for enhancing employees' interest and their tenure in employment, especially if the presented training programs focus on psychological safety and are backed up by workplace safety culture De Cieri, & Lazarova,2021).With reference to the proposed hypotheses, it was found that engagement and retention can be accomplished through the effects of OHS training that affects the employees' outcomes directly or indirectly with the aid of psychological safety. Also, the Influence of workplace safety culture indicates the importance of the enhancement of managerial culture that will promote improvement of OHS interventions.

Subsequent research should develop greater clarity regarding how OHS training programs raise engagement and participation with an emphasis on psychological safety and safety culture. Long-term studies could offer some understanding of how these variables change and the effects they would have on organizational efficiency (Sapp, 2022). Finally, by following a systematic approach to training OHS, organizations can spearhead the development of a healthy working environment and acquire the physical and psychological safety of their personnel, which signifies a productive and loyal staff.

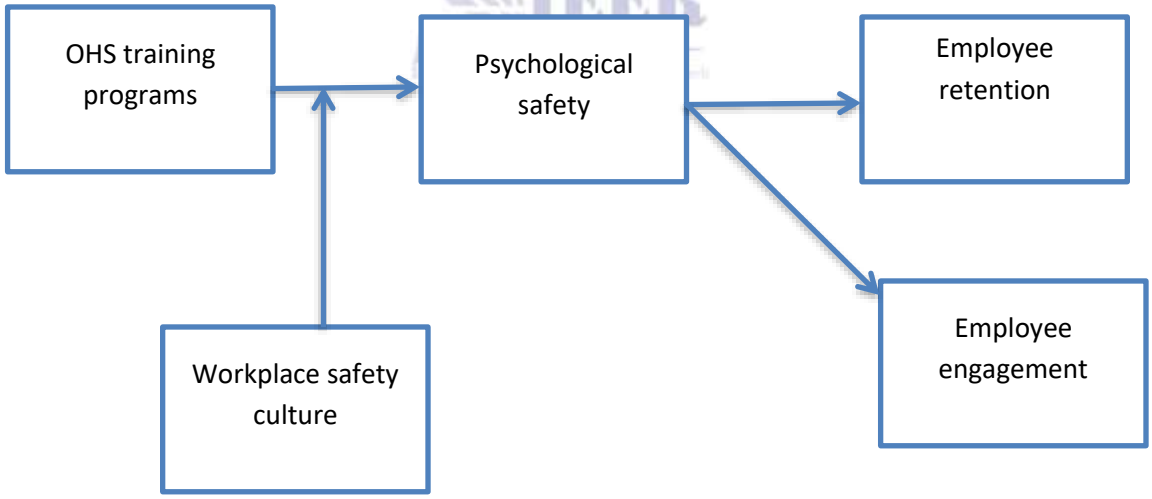


Figure 1 Conceptual model

3. Methodology

The research approach used in this present study is quantitative as it seeks to investigate the level of association between the constructs of workplace safety climate, OHS training initiatives, psychological safety, employee involvement, and employee turnover intention in the textile sector of Pakistan. A quantitative approach supports the collection and analysis of data that allows statistical inferences of such relations. Since the

textile industry holds a significant position in the economy of Pakistan and has a large number of employees, this research concentrates on this field to give theoretical and practical contributions.

3.1 Research Design

In this research, time-lagged survey data was gathered at two different time points, and a reduction of time between the two surveys aimed at measuring the psychological safety, OHS training programs, workplace safety culture, engagement, and retention of employees in the context of Pakistan's textile industry. Also, the use of descriptive research design employed the examination of the hypothetical constructs to establish the strengths and directions of the used variables.

3.2 Sample and Data Collection

The target sampling population comprises workers in the textile manufacturing industries within the principal industrial regions of Karachi, Lahore, and Faisalabad. These cities include substantial regions of the textile industry of Pakistan and thus contribute diverse section of the workplace. Before any data was collected, informed consent was obtained from each person to participate in this study. By signing a consent form, participants gave their written approval. They attested to their understanding of the study's goals, methods, and rights—among which is the freedom to discontinue participation at any moment. Ethical principles were followed when securing the consent forms. In cases when participants could not give written consent because of particular circumstances, verbal consent was gained and recorded on audio recordings. These recordings were safely stored for record-keeping and ethical approval.

A purposive random sampling technique was employed, sampling on the basis of factory size and geographic area, small, medium and large factories and in various regions. A target population of 250 employees was considered adequate for obtaining adequate statistical power for testing the study hypotheses and determining the correlation between the variables.

The primary data was obtained using internet questionnaires filled in Google Forms in order to involve employees from different regions. The secure link to the survey was provided to the employees and hence had comprehensive coverage despite the fact that the textile industry is dispersed. The target sample size was 350 because of the potentially non-responsive or non-complete of the given surveys. Finally, 250 fully completed questionnaires were completed and returned thus giving a good database for analysis.

3.3 Measures

The study utilized a closed-ended questionnaire to assess the five key variables: psychological safety, Occupational Health and Safety training, the promotion of Safety Climate, employee engagement, and employee retention. The questions in all the sections of the questionnaire were adopted from other accepted and standardized tools for assessing the reliability and validity of the measures.

Psychological Safety: Based on a self-developed tool known as the Perceived Psychological Safety Questionnaire, including seven items responded to on a five-point Likert scale: 1 (Strongly Disagree) and 5 (Strongly Agree), developed from Edmondson's (1999) Psychological Safety Scale. This scale evaluates the freedom of the employee and his/her organization in expressing ideas and voice with apprehension of repercussions.

OHS Training Programs: Evaluating the outcomes of OHS Training Seven items related to employees' perception of OHS training were used as a survey method by Neal & Griffin (2021) and Silva et al. (2020). These are in the form of five Likert-type scales, which measure different concerning safety knowledge and safety preparedness.

Workplace Safety Culture: In order to assess the degree of safety culture, the Safety Climate Scale developed by Dvora Zohar in 2000 was adopted. This is a composite measure of 16 items on a Five Likert scale, a Self-developed measure that was designed to capture the degree of safety

commitment by the management and the extent of safety culture within organizations.

Employee Engagement: Employee engagement was measured by using the Q12 items, where eight items are included in the present study. The items are about the employer's commitment, that is, the purpose, recognition, and development opportunities the employee has in the organization, which are scaled on a 5 Liker scale.

Employee Retention: A retention scale developed by Park & Hong (2020) and Gillen et al. (2020) was employed here with seven items measuring their desire to stay with the organization and their overall Job satisfaction level. The items were self-assessed on a five-point Likert scale.

3.4 Data Analysis

Descriptive statistics were used to provide insight into the relationships between the variables and to make a decision with regard to mediation and moderation analyses, whereby the collected data were analyzed employing the assistance of SPSS and Process Macro.

Descriptive Statistics: For data description and to understand the demographic profile and the overall response disposition of the sample, measures of central tendency, a measure of dispersion, a measure of relative description, and the percentage was computed.

Reliability and Validity Testing: The internal consistency of each scale was analyzed by means of
Cronbach's alpha, which should exceed 0.70. In this study, factor analysis was also performed to make sure that all the items belonged to the factor of the scale in which they were in the study.

Regression Analysis: In the current study, multiple regression analysis was conducted to test the hypothesis that is postulated in the current study that humor psychological safety, OHS training programs, workplace safety culture, employee engagement, and employee retention are related. By so doing, this analysis made it possible to quantify the proportion of variability in employee retention and employee engagement that is explained by each of the variables.

Mediation Analysis: Consistent with Hayes (2013), it is proposed that the process Macro test for mediation effects, that is, whether psychological safety acts as a mediator between OHS training programs and employee engagement and retention. This analysis assisted in revealing communication patterns of how safety training impacts (employee outcomes).

Moderation Analysis: Employing a cross-sectional survey method, workplace safety culture was examined as the moderator between OHS training programs and psychological safety. To answer this research question, the current study explored the moderation of safety training on psychological safety based on the level of safety culture in the workplace.

4. Findings and Results

The findings and results of this study provide a comprehensive analysis of the relationships between psychological safety, OHS training programs, workplace safety culture, employee engagement, and employee retention in the textile industry of Pakistan. These cross-sectional findings enhance the understanding of the relationships among these factors and their effects on employees when a time-lagged survey design is applied. Patterned with multiple regression, mediation, and moderation analyses, significant patterns were identified, showing the relationship between safety culture and organizational support with Employee Engagement and Employee Retention. The findings also underscore the relevance of the intervention on safety training as well as highlighting the effects of psychological safety in the workplace while contributing practical information on how to increase employee turnover in the industry.

4.1 Descriptive statistics

The mean, and standard deviation results present in table 1 some general items or factors of organizations that employees have formed perceptions on. The mean score of the Occupational Health and Safety Training Programs (OSHTP) was 2.29, which shows that the employees consider these programs below average and that there is much that can be done to improve the perception of OHS training among the employees. The SD of 0.855 also suggests that the response variability is moderate, and these results confirm that there are differences in the experience of employees with these programs.

For Psychological Safety (PS), the mean score was 2.59, slightly higher than OHS training but still below the midpoint. This suggests that the level of insecurity was moderate when employees were speaking out at the workplace. The relatively high SD of 0.968 points to a wide range of employee experiences, suggesting that different individuals perceive psychological safety differently.

The Workplace Safety Culture (WSC) had a mean score of 3.07, indicating an average to slightly positive perception of safety culture within the organization. With an SD of 1.027, the data suggests significant variability in how employees perceive the workplace safety culture, highlighting potential inconsistencies in safety practices across the organization.

The mean score for Employee Engagement (EE) was 3.52, suggesting that employees generally feel engaged in their work, with a slightly above-average level of engagement. As a result, the SD of 0.908 constitutes the moderate fluctuation of the engagement level, while overall engagement seems relatively positive.

In the last place, the results of the analysis of Employee Retention (ER) had the highest mean score of 3.79, which means that the people who work in the organization have a positive attitude regarding their permanence in the company. Let's consider the test variable of the Movement, 0.917 is indicative of moderate variability and thus higher. Employees have predispositions of sticking to the stated firm which is suggestive of higher levels of retention.

In summary, the data shows that while employees are generally engaged and inclined to stay, there are areas of concern, particularly in OHS training programs and psychological safety, which present opportunities for organizational improvements.

4.2 Reliability analysis (Cronbach's Alpha)

The coefficients in the round brackets are Cronbach's alpha coefficients, which determine the internal consistency (reliability) of the scales used on the corresponding variable. A higher reliability co-efficient value is marked. Here is an interpretation of these reliability values:

Table 1 depicts OSHTP (OHS Training Programs): Cronbach's alpha = 0.88 This indicates a high internal consistency, meaning that the items used to measure OHS training programs are highly reliable and consistently measure the same underlying concept.

PS (Psychological Safety): Cronbach's alpha = 0.89This is also a strong reliability coefficient, suggesting that the items used to assess psychological safety are highly reliable and consistently reflect the intended construct.

WSC: Cronbach's alpha = 0.92. The Cronbach's alpha value was found to be 0.92, which suggests excellent reliability. The items measuring workplace safety culture are consistent and accurately measure this construct.

EE (Employee Engagement): Cronbach's alpha = 0.92. Similar to workplace safety culture, this alpha value shows excellent reliability. The items used to measure employee engagement are highly reliable and consistent.

ER (Employee Retention): Cronbach's alpha = 0.88. This is a high-reliability value, which means that the scale for measuring the level of employee retention is highly reliable and accurately measures the retention construct.

4.3 Correlation analysis

The correlation table 1 presents the relationships between Occupational Safety and Health Training Programs (OSHTP), Psychological Safety (PS), Workplace Safety Culture (WSC), Employee Engagement (EE), and Employee Retention (ER). Here is an interpretation of the correlations between the variables:

Correlation between OSHTP and Other Variables:
OSHTP and PS ($r = 0.757$, $p < 0.01$): There is a strong positive correlation between Occupational Safety and Health Training Programs and Psychological Safety. This suggests that better safety training programs are associated with higher levels of psychological safety among employees.
OSHTP and WSC ($r = 0.598$, $p < 0.01$): There is a moderate positive correlation between OSHTP and Workplace Safety Culture, indicating that organizations with comprehensive safety training programs tend to have a more robust safety culture.
OSHTP and EE ($r = 0.520$, $p < 0.01$): There is a moderate positive correlation between OSHTP and Employee Engagement, meaning that better safety training programs are linked to more engaged employees. OSHTP and ER ($r = 0.275$, $p < 0.01$): The relationship between OSHTP and Employee Retention is low and positive, which means that while safety training can play some level of impact on retention, it cannot be totally relied on to influence if the employee stays or not.

Correlation between PS and Other Variables:
PS and WSC ($r = 0.737$, $p < 0.01$): There is a strong positive correlation between Psychological Safety and Workplace Safety Culture, indicating that employees who feel psychologically safe also perceive a more robust safety culture in the workplace. PS and EE ($r = 0.698$, $p < 0.01$): There is a strong positive correlation between PS and Employee Engagement, suggesting that employees who feel psychologically safe are more likely to be engaged in their work. PS and ER ($r = 0.411$, $p < 0.01$): There is a moderate positive correlation between PS and Employee Retention, implying that psychological safety is linked to higher retention rates, but other factors may also play a role.

Correlation between WSC and Other Variables:
WSC and EE ($r = 0.774$, $p < 0.01$): There is a strong positive correlation between Workplace Safety Culture and Employee Engagement, suggesting that employees in organizations with a strong safety culture tend to be more engaged in their work. WSC and ER ($r = 0.436$, $p < 0.01$): There is also a moderately positive and significant coefficient of WSC and ER, which means that Employee Retention is high where there is a strong WSC.

Correlation between EE and ER: EE and ER ($r = 0.735$, $p < 0.01$): There is a strong positive correlation between Employee Engagement and Employee Retention, suggesting that highly engaged employees are much more likely to remain with the organization.
The strongest correlations are between Workplace Safety Culture and Employee Engagement ($r = 0.774$), as well as between Psychological Safety and Workplace Safety Culture ($r = 0.737$). This indicates that workplace safety culture and psychological safety are highly influential in driving employee engagement. Psychological Safety has strong to moderate correlations with most variables, suggesting its central role in shaping outcomes like engagement and retention.
The lowest correlation is between OSHTP and Employee Retention ($r = 0.275$). This means that though safety training is necessary, other factors like engagement and safety culture play a more significant role when it comes to the retention of employees, namely;
Most of the variables have Cronbach's alpha of 0.72 and above, whereas the acceptable criterion is 0.70. In particular, values of 0.80 and above are deemed very good, while values of 0.90 and above (seen for WSC and EE) reflect good internal consistency. Hence, the items incorporated in the respective scale for the study consumed equality and precision in estimating the relevant constructs.

Table 1
Means, standard deviations, correlations, and reliabilities for the main variables of interest in this study

		Mean	SD	OSHTP	PS	WSC	EE	ER
1	Mean OSHTP	2.2903	.85502	**(.88)**				
2	Mean PS	2.5926	.96778	0.757**	**(.89)**			
3	Mean WSC	3.0717	1.02697	0.598**	0.737**	**(.92)**		
4	Mean EE	3.5240	.90835	0.520**	0.698**	0.774**	**(.92)**	
5	Mean ER	3.7920	.91710	0.275**	0.411**	0.436**	0.735**	**(.88)**

Note. N=250; Cronbach alpha reliabilities are in parenthesis.*p<.05, **p<.01

4.4 Mediation analysis (OHS IV, PS (Med), DVS (EE, ER))

The mediation analysis in Table 2 examines whether psychological safety (PS) mediates the relationship between Occupational Safety and Health (OSH) training programs and two employee outcomes: participation, involvement, retention, and commitment, known as employee engagement (EE) and employee retention (ER). The findings of direct and indirect effects are reported using unstandardized regression coefficients (ß), standard errors (S.E), and p-values.

1. Direct Effects:

OSH → EE (β = 0.5526, p = 0.000): The impact of OSH on EE, therefore, is positive and robust; rising from it, that the safety training programs are positively correlated with Employee Engagement. This is in line with the notion that when an employee has the assurance of safety at the workplace, he/she is more productive.

PS → EE (β = 0.8565, p = 0.000): Another impact of psychological safety in relation to engagement is also relatively high and highly significant. This exposes the fact that the idea of psychological safety is an essential factor in boosting engagement. Workers who have a voice and who can speak up concerning issues that affect their jobs and the organizations they work for without any risk of losing their jobs may likely be committed.

OSH → PS (β = 0.6682, p = 0.000): OSH has a highly significant direct influence on the level of psychological safety. It, therefore, indicates that safety training programs foster psychological safety at the workplace, ensuring that people can voice themselves and be willing to take chances because of adequate assurance that in case things go wrong, they will not be penalized.

OSH → ER (β = 0.2954, p = 0.000): It is relevant to note that the relationship between OSH and ER is indirect, yet, when direct, it is somewhat less robust than the relation to Employee Engagement (EE). This means that though safety training increases retention rates, it is not enough to promote it alone.

PS → ER (β = 0.4483, p = 0.000): Psychological safety was strongly associated with staff turnover, indicating that the staff who worked in settings that they perceived psychologically safe would be likely to remain in the organization. Psychological safety increases retention since it minimizes turnover intention and promotes the people's feeling that they are part of the team.

2. Indirect Effects:

OSH → PS → EE (β = 0.5723, p = 0.000, LLCI = 0.4490, ULCI = 0.7114): Hypothesis 3 established that OSH has an indirect effect on the EE through the mediation of psychological safety. The results of the Bootstrap test reveal that this relationship is both reliable and statistically meaningful. Bootstrap 95% confidence interval of the indirect effect did not cross zero: LLCI=.019, ULCI =.041. This implies that the level of psychological safety fully mediates the OSH training and employee engagement link. In other words, training in OSH increases the level of perceived psychological safety, which subsequently improves the level of engagement.

OSH → PS → ER (β = 0.3898, p = 0.000, LLCI = 0.2352, ULCI = 0.5422): Likewise, the total indirect effect OSH has on Employee Retention through the mediator of psychological safety is also significant. This means that OSH training

affects retention positively through the promotion of positive psychology and an environment that forces an employee to stay within the organization.

3. Normal Theory Test for Indirect Effects:

OSH → PS → EE (Z = 8.90, p = 0.000): The Z-value for the mediation effect on employee engagement is also significant, which again fully supports the hypothesis of this study that psychological safety does indeed fully mediate the relationship between OSH training and engagement. OSH → PS → ER (Z = 5.11, p = 0.000): The Z-value for the mediation effect on the retention of employees is also very significant and, therefore, supportive of the effect of psychological safety in retention.

OSH Training and Employee Engagement: These results accord with prior writings (for instance, Neal and Griffin 2021), which posited that OHS training programs enhance the overall engagement of the workforce in the course of creating a secure work climate. Safety training enables the employee volunteers to develop the necessary skills and confidence that are required to work without accidents, hence increasing their loyalty to the organization.

Psychological Safety as a Mediator: In the present study, the significant mediation of psychological safety strengthens Edmondson's (1999) work on psychological safety in the context of a work setting. According to Frazier et al. (2021), there was a direct relationship between psychological safety, employee engagement, and intent to stay in the organization, a view supported by the current study.

Employee Retention: The findings also support the Conservation of Resources (COR) theory developed by Hobfoll (1989) that although employees seek to attain as many valuable resources as they can, like safety, they also strive to ensure that their resources are protected. Studying the positive relationship between organizational psychological safety and employee turnover, the authors indicated that employees are less likely to quit their organizations when they are secure, both physically and psychologically (Gillen et al., 2020).

Workplace Safety and Retention: While the total indirect effect of OSH on turnover is lower than that for engagement and interest, the indirect effect mediated through psychological safety reveals exciting findings regarding the importance of a safety climate for decreasing turnover supported by Lingard et al. (2022). Safety culture, if well enhanced, will lead to high organizational retention because employees are bound to have suitable quality attachment or affiliation to any organization with a keen regard for employee safety. The outcomes of the mediation examination show that psychological security is central to bringing about better engagement and retention of employees by offering OHS training programs. It is agreed that safety training helps, but getting it to help employee outcomes takes safety training to create a psychological safety climate as reported in the literature concerning organizational support and employee well-being.

Table 2
Mediation Analysis (psychological safety mediates between OSH ns employee outcomes)

Mediator: PS and DV: EE and ER				
	B	**S.E**	**T**	***P***
OSH→EE	0.5526	0.0576	9.59	0.000
PS→EE	0.8565	0.0470	18.22	0.000
OSH→PS	0.6682	0.0654	10.21	0.000
OSH→ER	0.2954	0.0655	4.511	0.0000
PS→ER	0.4483	0.0840	5.33	0.000
Indirect Effect				
	B	**S.E**	**LLCI**	**ULI**
OSH→PS→EE	0.5723	0.0654	.4490	.7114
OSH→PS→ER	0.3898	0.782	.2352	.5422

Regular Theory Test for Indirect Effect			
Effect	**S.E**	**Z**	***p***
0.5723	0.0643	8.90	0.000
0.3898	0.0750	5.11	0.000

Note: n=250; unstandardized regression coefficients are reported. Bootstrap sample size=5000.LL=lower limit; CI= confidence interval; UL = upper limit

4.5 Moderation analysis (WSC as a Moderator of OSH → PS)

The table 3 depicts the outcome of the moderation analysis in which WSC bolsters the relationship between the OSH training program and PS. Again, how OSH does or does not impact PS is also analyzed by the interaction between OSH and WSC, that is, the OSH × WSC.

Constant (β = 2.6461, p = 0.000): Specifies the level of psychological safety (PS) in the experiment when OSH =0 and WSC =0. This is statistically highly significant meaning that the model can well capture the data.

OSH → PS (β = 0.6030, p = 0.000): There is a stronger association between Occupational Safety and Health training and Psychological Safety with a medium direct effect. The estimated regression coefficient is positive (β = 0.6030), suggesting that as OSH training enhances, employee perception of psychological safety also rises in support of the hypothesis that every good safety training program fosters psychological safety in organizations. This is in concordance with the suggested hypothesis that OSH programs improve psychological safety.

WSC → PS (β = 0.3674, p = 0.000): As expected, both Workplace Safety Culture to Psychological Safety (Communication-Unit B, Unwritten Rules-Unit B) and Cognitive Reliability to Psychological Safety (Information Exchange-Unit C) paths are statistically significant. The regression coefficient estimate (β = 0.3674) >0 indicates that as WSC evolves, employees report increased psychological safety. This supports the hypothesis that has been proposed here that a good safety culture correlates with employees' perceived safety.

OSH × WSC Interaction (β = -0.1024, p = 0.0095): As expected, the interaction term is negative and significant. This means that Workplace Safety Culture meditates the relationship between OSH training and Psychological safety in a manner that reduces the direct impact of OSH training on psychological safety. In particular, as WSC rises, the positive Influence of OSH on PS is given slightly less emphasis.

In organizations with a high culture of workplace safety, the relationship between OSH training programs and psychological safety was relatively low. This may be because in places where safety is seen as being of prime importance, there could be minor gains of boosting OSH training for promoting psychological safety as the employees already feel secure. On the other hand, in organizations that practice a comparatively fragile safety culture, contracted on formal bearings only, OSH training is more potent in increasing psychological safety.

Confidence Intervals (LLCI - ULCI): Looking at the confidence intervals of the interaction effect (LLCI = - 0.1796, ULCI = - 0.0252), it reveals that these do not cross zero and thereby proves the existence of a moderation effect.

The hypothesis was probably generated from the idea that Workplace Safety Culture (WSC) may mediate the relationship between Occupational Safety and Health (OSH) training programs and Psychological Safety (PS). The results support this hypothesis as it has been found that WSC actually mitigates the extent of the OSH → PS relation.

Strong Safety Culture (WSC): Even in organizations where the leadership has already embraced the safety culture, the training in OSH still increases the psychological safety of employees but not to the same extent as that of the organizations that lack the safety culture.

Weak Safety Culture (WSC): In organizations with a less developed safety culture, the Influence of OSH training on the level of psychological

safety is higher, as the person uses other safety training to feel protected.

In this study, Workplace Safety Culture serves as the moderator through which the association between OSH training and Psychological Safety is mediated. OSH training and WSC have been individually linked to enhanced psychological safety. However, the findings suggest that while cross-multiplying both training outcomes reduces harm, there is a slight loss in the potency of OSH training where WSC is high. This implies that safety culture can mediate the extent to which OSH training is necessary to attain psychological safety, as postulated in this study.

Table 3
Moderation Analysis

Moderator: WSC **to OSH and DV:** PS

	B	**S.E**	**t**	***P***	LLCI	ULCI
Constant	2.6461	.0450	58.8353	.0000	2.5575	2.7347
OSH	.6030	.0567	10.6356	.0000	.4913	.7147
WSC	.3674	.0469	7.8359	.0000	.2751	.4598
OSH×WSC	-.1024	.0392	-2.6142	.0095	-.1796	-.0252

Note: DV=PS IV=OSH, Moderator=WSC

In Figure 2 moderated relationship is depicted, where Workplace Safety Culture, as the mediator variable, dampens the direct relationship between Occupational Safety and Health Training Programs and Psychological Safety. On the x-axis, we have low and high OSHTP which gives us the strength of the safety training programs offered by the organization. On the y-axis, the levels of psychological safety are deployed, where numbers from 1 to 5 represent low to high degrees of safety when it comes to speaking up concerns or ideas without risking being penalized or punished.

When OSHTP is low, psychological safety is also low; hence, for low WSC (blue line) as well as for high WSC (red line). But, it's to note that employees in high WSC environments experience comparatively higher levels of psychological safety than those in low WSC environments. It also implies that unlike with weak WSP, even infrequent and ineffective safety training can improve Psychological Safety and create a culture where employees will feel comfortable sharing ideas and open to taking risks.

Overall, as OSHTP rises, psychological safety is enhanced, and this is for both low and high WSC. However, the results revealed that the post-implementation elevation of OSHTP has a more substantial impact in an area with a poor safety culture. Here, trends in physiological, psychological safety are seen to rise steeply as OSHTP strengthens in these settings, as indicated by the steep slope in the blue line. On the other hand, in a high-safety culture where psychological safety is presumed already high, the increment added to OSHTP is smaller; in essence, the red line slope becomes relatively flat.

Hence, Workplace Safety Culture only mediates the relationship between OSH training programs and psychological safety. The result shows that when the organization has a poor safety culture, OSHTP has a comparatively more substantial influence on psychological safety, which means that safety training plays a significant role in these organizations. On the other hand, the companies that have advanced safety culture and psychological safety are already established at a reasonable level, and the increase brought by OSHTP is less than in the organizations that have no safety culture at all. This underscores the need for a safety culture as well as the need for safety training toward building a psychologically safe environment.

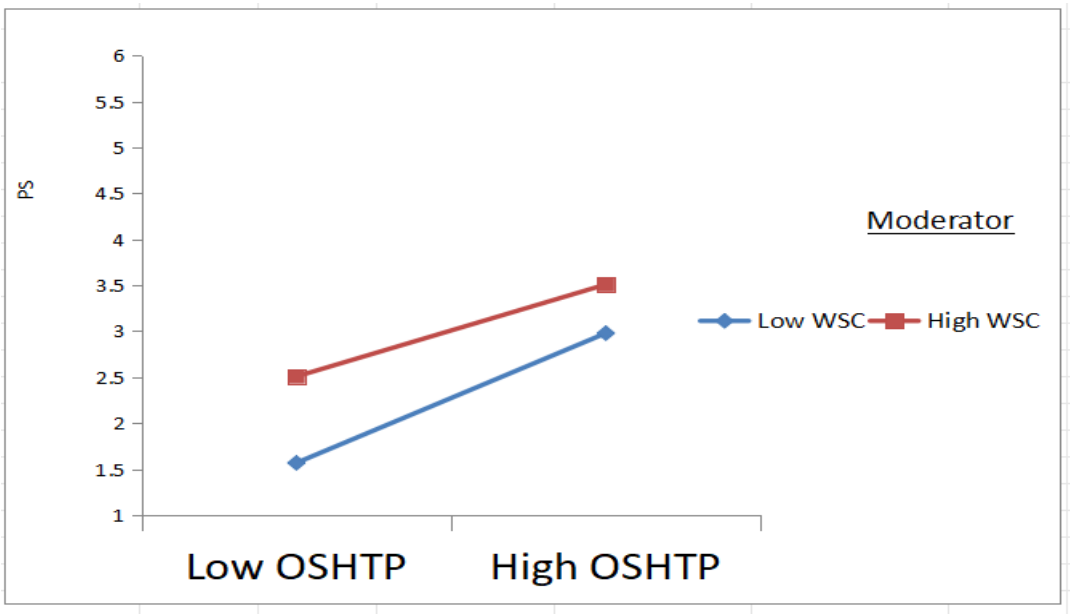


Figure 2 Intercept plot

5.1 Discussion

This research aims to understand the relationship between the engagement and retention of employees and Occupational Health and Safety (OHS) training programs, Psychological Safety, and Workplace Safety Culture. The present findings also revealed the presence of a correlation between these factors and reinforced the credibility of a physically and psychologically safe atmosphere at the workplace.

An evaluation of the results led to the validation of all the hypotheses developed in this study. Proper OHS training for employees enhances employee on-job engagement and staff turnover (H1, H2). This paper establishes that practical OHS training contributes to the creation of perceived safety and the level of accomplishment, leading to increased obedient attendance from workers. In addition, psychological safety fully moderates the effect of OHS training on engagement (H3a) as well as moderates the effect of OHS training on retention (H3b). Psychologically safe employees produce better performances, display higher levels of commitment to an employer, and are likely to stay with their employers. Finally, it is proposed that workplace safety culture will moderate the relationship between OHS training and psychological safety (H4). Where there is a normative solid safety culture, safety training has a synergistic effect, with total effects also decreasing where the odd is true.

It is the finding that with regard to the interaction between the independent variables, workplace safety culture, and OHS training on psychological safety unless workplace safety culture is high and increasing, OHS training may enrich the organization no further. There was a suggestion that in highly safety-conscious organizations, people already feel safe, and it may need to be more adequate to repeat the ideas conveyed in safety training over again and over. However, in organizations with a low safety climate, OHS training is essential to build psychological safety. This is in contrast with the Conservation of Resources (COR) theory, where if an individual feels psychologically safe, they will seek to protect this resource.

5.2 Practical implication

Organizations must ensure the establishment of effective OHS training delivery with aspects of psychological safety included because high physical and psychological safety reduces turnover drastically. Thus, in organizations where, usually, safety culture is less developed, thorough safety training can bring about significant changes in employees' involvement and motivate them, given

that they will feel more protected. Whereas, in a strong safety climate, organizations should aim to sustain a high level of safety performance and, at the same time, improve psychological safety through some introductions. The authors also discussed that leadership is an essential factor in promoting change and maintaining a strong positive safety culture within an organization. By creating a positive safety culture, establishing an environment where employees can provide suggestions and ideas and report incidents and risks without negative consequences, and leaders showing safety as a value within the organization, leaders will be able to improve the effectiveness of subsequent safety training and also increase employee engagement and loyalty.

5.3 Theoretical implication

Building on Edmondson's (1999) Psychological Safety Framework, this research examines the OHS training and workplace safety culture in construction workers. The results prove that psychological climate acts as the main moderator in the link between the OHS training and the variables, thus supporting the COR theory for application in workplace contexts. Furthermore, this paper examines the mediating Influence of safety culture whereby it is confirmed to influence the impact of safety interventions.

5.4 Limitations

This raises the issue of external validity and generalization of the study findings, especially to other industries, this having been conducted among textile workers who work in relatively dangerous conditions. To extend the generalisability of these findings, future research should investigate these dynamics in other sectors. However, the employed time-lagged design used in this study helps to enhance the observation of relations across time; nonetheless, one practical causal relation is still being determined. The sources recommend conducting follow-up studies to understand better how new changes in OHS training and directions in building a safety culture may affect employees across many years, providing more profound insights into these processes.

5.5 Future direction

Future research should extend the study design to conduct an analysis of changes in the effects of OHS training and the safety culture on aspects of employee engagement and retention over time. Furthermore, more research study is required on various industries to understand better how psychological safety influences OHS training and safety culture with varying levels of physical risk in the organization. Further, the research could compare existing safety training by developing new training approaches, including the use of modern technologies such as VR, and how these improvements affect employee psychological safety and turnover across settings or organizations.

5.6 Conclusion

This study also emphasizes the importance of developing extensive OHS training and a good safety culture that increases worker involvement and productivity by reducing staff turnover. Therefore, the results indicate that when employees physically and psychologically cultivate protection, they are also much more effective at the interested and committed to their organization. This is even more so the case of the mediating role of psychological safety, which emphasizes the fact that encouraging employees to raise their concerns and ideas and to experiment with new solutions without the danger of adverse consequences is crucial when it comes to retaining key employees and achieving more excellent organizational performance over time. Employers can gain a lot through improving the safety culture and proactively OHS education and training that directly reduce turnover by fostering more significant levels of confidence, satisfaction, and organizational commitment among employees. They do more than satisfy the legal requirements when it comes to safety, and they can also serve to meet core psychological needs, resulting in workplace environments that are fundamentally sound, stable, and sustainable in terms of long-term employee engagement.

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