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Organizational Commitment, Job Satisfaction, and Work Environment: Pathways to Stress, Engagement, and Turnover in Pakistan Special Education Centres

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ABSTRACT

Purpose: The study examines the relationships between occupational stress, employee engagement, job satisfaction, organizational commitment, and turnover intention, with a focus on employees in Pakistani special education centers.
Aim: To provide actionable insights for HR professionals by identifying strategies to manage stress, enhance engagement, and foster supportive work environments that improve job satisfaction and reduce turnover.
Design/Methodology: A quantitative approach using PLS-SEM (SmartPLS 4.0) and SPSS was employed. Data were collected through a structured questionnaire from 343 employees in public and private special education centers.
Findings: Occupational stress negatively affects job satisfaction and engagement. Organizational commitment mediates the relationship between engagement and turnover intention, while job satisfaction mediates the association between stress and engagement. Additionally, a supportive work environment moderates the relationship between job satisfaction and engagement.
Limitations: The cross-sectional design restricts causal interpretations.
Practical Implications: The current study findings offer HR professionals evidence-based strategies to develop stress management programs, strengthen employee engagement, and cultivate supportive work environments, ultimately improving job satisfaction and reducing turnover.
Originality/Value: The study offers unique insights into workplace dynamics within high-stress environments, presenting evidence-based strategies for HR management in special education centers Pakistan.

KEY WORDS

occupational stress, employee engagement, turnover intention, organizational commitment, job satisfaction, work environment

JEL Code: I21, J28, J63, J81, M12, M54

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1 INTRODUCTION

The aim of the research is to investigates the relationships among occupational stress, employee engagement, and employee turnover intention in Pakistani special education centres. Additionally, it explores the moderating effects of the work environment and the mediating roles of job satisfaction and organizational commitment. In Pakistan, approximately 340 government-run special education centres cater to individuals with diverse impairments (Directorate General of Special Education, Punjab Skills Development Fund, South Asia Institute). There are also around 300 private special education schools, primarily located in larger cities where there is greater demand for such services and easier access to resources (South Asia Institute, UNESCO)

Despite the crucial role of staff in the centres, limited research has examined the unique challenges faced by employees in special education, particularly in Pakistan's distinct sociocultural context. The study addresses a significant research gap by focusing on how occupational stress, job satisfaction, and the work environment influence employee engagement, organizational commitment, and turnover intention. Specifically, the study investigates the roles of job satisfaction and organizational commitment as mediators and examines how the work environment moderates the relationship between job satisfaction and employee engagement. The findings are expected to provide contextually relevant insights into enhancing employee well-being and organizational outcomes in Pakistani special education facilities.

Previous studies highlight the importance of job satisfaction, organizational commitment, and the work environment in shaping employee outcomes. For example, Prakosa and Qurrotul Aini (2024) demonstrated that job satisfaction mediates the relationship between job stress and employee performance, suggesting that higher job satisfaction reduces occupational stress, which in turn enhances engagement and performance. Similarly, Ushakov and Shatila (2022) emphasized the mediating role of organizational commitment in reducing turnover intention, highlighting the importance of dedication, involvement, and organizational support. Mansur et al. (2024) underscored the critical influence of the work environment on employee satisfaction and engagement, while Indradewa and Santiajie (2024) found that employee engagement significantly impacts turnover intention and that fostering engagement improves satisfaction and retention.

Extant research provides valuable insights into the individual and combined effects of occupational stress, job satisfaction, work environment, employee engagement, and organizational commitment on turnover intention. However, a critical gap persists concerning the specific interplay among the aforementioned constructs within special education settings, particularly in Pakistan. The current study addresses that deficiency by investigating the complex relationships among the variables, employing a rigorous methodological approach incorporating both mediation and moderation analyses. Specifically, the research seeks to answer the subsequent questions:

RQ1: How does occupational stress affect employee engagement in special education centres?

RQ2: How does job satisfaction affect organizational commitment among employees in special education centres?

RQ3: Does organizational commitment mediate the relationship between employee engagement and turnover intention in special education centres?

RQ4: Does job satisfaction mediate the relationship between occupational stress and employee engagement in special education centres?

RQ5: Does the work environment moderate the relationship between job satisfaction and employee engagement in special education centres?

RQ6: What are the direct and indirect pathways through which occupational stress, job satisfaction, employee engagement, organizational commitment, and work environment influence turnover intention in special education centres?

The primary objective of the study is to provide actionable recommendations for human resource professionals operating within special education centres. By comprehensively analysing the complex relationships among the aforementioned variables, human resource managers can develop evidence-based strategies to enhance employee engagement, mitigate turnover intention, and improve job satisfaction. Interventions such as stress management programs and the cultivation of supportive work environments can foster a more engaged and committed workforce, ultimately benefiting the unique ecosystem of Pakistani special education institutions.

2 LITERATURE REVIEW

2.1 OCCUPATIONAL STRESS AND ITS IMPACT ON JOB SATISFACTION AND EMPLOYEE ENGAGEMENT

Breaugh (2021) suggests that while occupational stress negatively correlates with employee engagement, the satisfaction of fundamental psychological needs—autonomy, competence, and relatedness—can mitigate this negative relationship. This implies that cultivating a work environment that supports these needs may act as a protective factor, reducing burnout and absenteeism while simultaneously enhancing employee engagement, even within the context of high-stress public sector employment.

Salahudin et al. (2016) empirically demonstrated a significant negative correlation between the two constructs, suggesting that excessive stress diminishes employee energy, commitment, and overall work satisfaction. Similarly, Guarnaccia et al. (2018) found that occupational self-efficacy plays a crucial mediating role in this relationship, as employees with higher self-efficacy are more resilient to job-related stress and maintain greater engagement and job satisfaction despite workplace challenges.

Occupational stress exerts a particularly strong negative impact on high-pressure professions, notably healthcare and education. Within the specialized field of special education, educators and support staff regularly encounter diverse student needs, challenging behaviors, and complex administrative demands, resulting in potentially heightened levels of stress. Girma et al. (2021) found a significant association between occupational stress and high workload, limited resources, and inadequate support systems among healthcare professionals in Ethiopia, culminating in emotional exhaustion and decreased job satisfaction.[3] These findings resonate with the challenges faced by special education professionals, where chronic exposure to stressors, absent adequate coping mechanisms, can lead to emotional exhaustion, diminished professional fulfillment, and ultimately, reduced job satisfaction Shi et al., (2022).

2.2 JOB SATISFACTION: A MEDIATIOR OF OCCUPATIONAL STRESS AND EMPLOYEE ENGAGEMENT

Job satisfaction plays a crucial mediating role in the complex interplay between occupational stress and employee engagement. Lambert et al. (2018) found that job stress negatively impacts job satisfaction, organizational commitment, and job involvement, ultimately increasing the risk of burnout. Their findings suggest that employees with higher job satisfaction are better equipped to cope with workplace stress, which facilitates sustained engagement and reduces burnout. Satisfied employees are more likely to exhibit resilience and maintain emotional well-being, both of which are crucial for sustaining engagement in demanding work environments. Organizations that prioritize enhancing job satisfaction tend to experience lower employee turnover rates and higher levels of engagement, contributing to long-term organizational success (Salliyuana et al., 2024).

The significance of job satisfaction is particularly pronounced in high-stress occupations such as special education, where employees regularly encounter emotionally and cognitively demanding tasks. Persistent exposure to occupational stress can lead to reduced morale and decreased motivation, diminishing employee engagement. However, by prioritizing factors that enhance job satisfaction, such as meaningful work, professional development opportunities, and a supportive workplace culture, organizations can mitigate the negative impact of stress and foster a more engaged workforce Nasrul & Masdupi (2020).

The dynamic and reciprocal relationship between job satisfaction and employee engagement is well-established in the literature. Satisfied employees tend to exhibit greater motivation, commitment, and productivity, thereby positively influencing organizational outcomes Riaz et al. (2016). Katebi et al. (2022) highlight that job satisfaction significantly influences job performance, with higher satisfaction levels leading to enhanced employee efficiency and organizational effectiveness. In the context of special education centers,

ensuring adequate institutional support, manageable workloads, and robust emotional support mechanisms are crucial for maintaining both job satisfaction and employee engagement.

2.3 WORK ENVIRONMENT: A MODERATOR OF JOB SATISFACTION AND EMPLOYEE ENGAGEMENT

The work environment plays a pivotal role in shaping employee experiences and influencing organizational outcomes. A supportive work environment, characterized by open communication, trust, and collaboration, has been demonstrated to enhance both job satisfaction and employee engagement Page & Tolmie (2024). Zhang and Chen (2024) found that digital transformation in human resource management significantly influences the work environment by enhancing flexibility, collaboration, and efficiency. Their study highlights that digitally optimized work environments reduce administrative burdens, improve communication, and foster a more adaptive organizational culture, ultimately boosting employee engagement and productivity.

Alameeri et al. (2021) suggest that a positive and supportive work environment facilitates employee leadership development, subsequently fostering increased job satisfaction and engagement. A workplace that prioritizes employee well-being and happiness contributes to a more cohesive and motivated workforce, ultimately enhancing organizational success. This is consistent with Suryaputra (2023) observation that organizations investing in improved workplace conditions tend to experience higher levels of job satisfaction and employee engagement, resulting in enhanced performance outcomes.

The significance of a positive work environment is particularly pronounced in high-stress sectors such as special education, where employees frequently encounter emotional and cognitive challenges. Pranitasari et al. (2022) highlight that a supportive work environment not only fosters employee engagement but also reduces turnover intentions. Factors such as ergonomic workplace design, manageable workloads, and strong social support systems can significantly enhance employee well-being and productivity. In special education centers, providing emotional support, promoting teamwork, and ensuring manageable job demands can help mitigate stress and strengthen the positive relationship between job satisfaction and employee engagement.

2.4 EMPLOYEE ENGAGEMENT AND ITS IMPACT ON ORGANIZATIONAL COMMITMENT AND EMPLOYEE TURNOVER INTENTION

Employee engagement reflects the level of enthusiasm, dedication, and involvement employees demonstrate towards their work. Engaged employees exhibit a genuine interest in their roles, actively contribute to organizational goals, and perceive their contributions as meaningful. High levels of employee engagement are associated with increased job satisfaction, job involvement, and organizational commitment Arulsenthilkumar & Punitha (2023). Organizations that prioritize fostering employee engagement tend to experience reduced turnover rates, as engaged employees are more likely to remain with the organization and contribute to long-term success Stefańska & Grabowski (2023).

While a positive organizational culture, coupled with high employee engagement, significantly enhances discretionary behaviors, the work environment alone may not always exert a substantial direct impact on these behaviors Virgareta & Firdaus (2022). Engaged employees typically demonstrate higher levels of organizational commitment, displaying a stronger sense of loyalty and devotion to the organization Sutiyem et al. (2020). Given the emotionally demanding nature of roles in special education centers, fostering engagement through supportive leadership, recognition programs, and professional development opportunities can be particularly effective in sustaining commitment and mitigating turnover intentions.

Employee engagement is a multifaceted construct that integrates cognitive, emotional, and behavioral components, all of which positively influence both individual and organizational performance Sun & Bunchapattanasakda (2019). In the context of special education, where burnout and turnover rates are

significant concerns, enhancing engagement can serve as a critical strategy for improving employee retention and enhancing overall institutional effectiveness.

2.5 ORGANIZATIONAL COMMITMENT: MEDIATOR OF EMPLOYEE ENGAGEMENT AND TURNOVER INTENTION

Organizational commitment is defined as the psychological state reflecting an employee's emotional attachment, identification, and loyalty to their organization. Elevated levels of organizational commitment are strongly associated with decreased turnover intention and increased employee engagement Mokoena et al., (2022). Moreover, Shah et al. (2020) highlight the crucial role of job integration in strengthening organizational commitment, which subsequently reduces employees' turnover intention. Their research emphasizes that cultivating a work environment that fosters job integration can be a sustainable strategy for employee retention and turnover mitigation.

Aktar and Pangil (2018) highlight the mediating role of organizational commitment in the relationship between human resource management (HRM) practices and employee engagement. The study suggests that HRM practices enhance employee engagement by fostering a stronger sense of organizational commitment. Engaged employees who also demonstrate strong organizational commitment are more likely to remain with their organization, thus reducing turnover rates. Similarly, Chen et al. (2022) demonstrated that organizational commitment mediates the relationship between work engagement and turnover intention. Specifically, their research on Chinese medical personnel confirmed that distributive justice positively influences both organizational commitment and work engagement, subsequently mitigating turnover intention. These findings underscore the importance of cultivating organizational commitment to enhance employee retention and organizational stability.

Research suggests that fostering organizational commitment has a reinforcing effect on employee engagement. Employees who feel committed are more likely to develop a deeper connection with their work and the organization, leading to improved performance and a decreased intention to leave Rani et al. (2023). In high-stress environments such as special education centers, where job demands can be emotionally taxing, strengthening organizational commitment through initiatives such as professional development programs, work-life balance programs, and a supportive workplace culture is crucial for retaining skilled educators and staff.

2.6 EMPLOYEE TURNOVER INTENTION AND ITS DETERMINANTS

Turnover intention refers to an employee's conscious decision or plan to leave their current employment. High turnover intention is frequently linked to job dissatisfaction, occupational stress, and a lack of organizational commitment Amri et al., (2023); Sharma & Syal (2022). Research by Nurtati et al. (2020) highlights that a positive work environment and equitable reward systems can significantly mitigate turnover intention by enhancing both job satisfaction and organizational commitment.

Elevated employee turnover rates can significantly impair organizational performance, particularly within service-based industries like education, where human capital is essential for institutional success. Ren et al. (2024) observed a high prevalence of turnover intention among employees in high-stress professions, such as emergency nursing, underscoring the broader impact of occupational stress on retention. This issue is particularly critical in special education centers, where the retention of experienced and skilled educators is vital for ensuring consistent, high-quality support for students with diverse learning needs.

To address turnover intention, organizations must focus on mitigating its underlying causes, including job dissatisfaction and limited career growth opportunities. Research suggests that employee engagement initiatives, career development programs, and supportive leadership can effectively reduce turnover intention and enhance overall organizational stability Keng et al. (2018). In the context of special education, strategies such as mentorship programs, mental health support, and workload management interventions

can play a crucial role in retaining skilled professionals and fostering long-term commitment to the organization.

2.7 HYPOTHESIS & RESEARCH MODEL

This section outlines six hypotheses based on the literature review on occupational stress, job satisfaction, employee engagement, organizational commitment, and turnover intention:

H1: Employee engagement is positively related to organizational commitment.

Research indicates a strong positive relationship between employee engagement and organizational commitment. Higher levels of engagement foster greater organizational loyalty and attachment Rahmawati et al. (2024), supporting the hypothesis that engaged employees are more likely to exhibit higher levels of organizational commitment.

H2: Job satisfaction is positively related to employee engagement.

A substantial body of research supports a direct and positive relationship between job satisfaction and employee engagement. Employees who derive fulfillment from their roles tend to exhibit higher levels of enthusiasm, dedication, and commitment Maryati et al. (2024). This suggests that enhancing job satisfaction can serve as a critical strategy for improving employee engagement and sustaining workforce motivation.

H3: Organizational commitment is negatively related to employee turnover intention.

Opolot et al. (2024) confirm that higher organizational commitment significantly reduces turnover intention. This relationship is particularly pronounced in service-oriented industries, such as education, where human capital plays a critical role in maintaining institutional success. Employees with a strong sense of organizational commitment are less likely to leave, contributing to workforce stability and improved student outcomes in special education settings.

H4: Occupational stress is negatively related to job satisfaction.

Research consistently demonstrates that occupational stress contributes to negative emotional states, including anxiety, frustration, and emotional exhaustion, which in turn negatively impact job satisfaction Ngirande, (2021). In the demanding context of special education centers, where educators and staff frequently navigate complex student needs and administrative pressures, the adverse effects of stress on job satisfaction are likely to be more pronounced. Addressing these stressors through robust institutional support mechanisms is crucial for sustaining job satisfaction and promoting long-term employee engagement.

H5: A positive work environment is positively related to employee engagement.

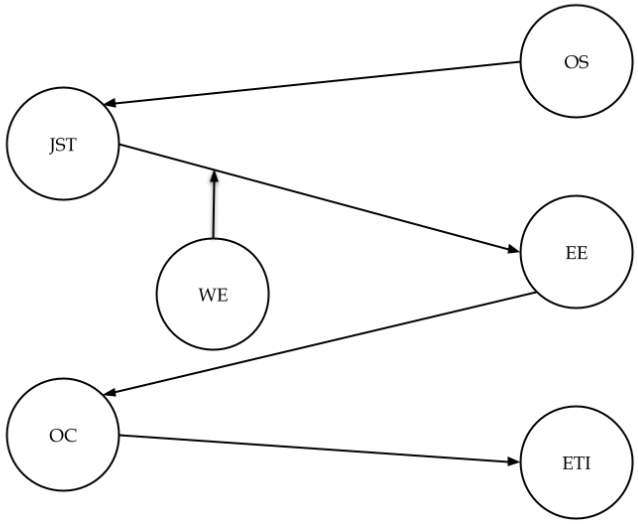
Shelke and Shaikh (2023) confirm that a positive work environment significantly enhances employee engagement. By fostering a culture of support, inclusivity, and professional growth, organizations can strengthen employee commitment and improve overall performance outcomes.

H6: The work environment moderates the relationship between job satisfaction and employee engagement, with a stronger positive relationship in more positive work environments.

Research by N & Meti (2023) suggests that a supportive work environment serves as a moderating factor, amplifying the positive effects of job satisfaction on employee engagement. When employees operate within a constructive and empowering work setting, the beneficial impact of job satisfaction on engagement is further reinforced. In special education contexts, ensuring that educators and staff have access to necessary resources, professional support, and a collaborative atmosphere can enhance their engagement levels, even in the face of occupational stressors.

The conceptual framework guiding this study is shown in Figure 1. The model depicts the hypothesized relationships among key constructs

Figure 1: Research Model



Source: Author's own elaboration

3 RESEARCH METHODOLOGY

3.1 QUESTIONNAIRE DEVELOPMENT AND VALIDATION

This section details the rigorous process undertaken to develop and validate the questionnaire instrument used in this study, designed to assess the relationships between Organizational Commitment (OC), Job Satisfaction (JS), Work Environment (WE), Occupational Stress (OS), Employee Engagement (EE), and Turnover Intention (TI) within the context of special education centers in Pakistan. A comprehensive approach was adopted, incorporating a thorough literature review, expert consultation, and pilot testing to ensure the instrument's validity and reliability.

3.1.1 QUESTIONNAIRE DESIGN AND THEORETICAL FOUNDATION

The questionnaire was meticulously crafted to comprehensively assess the study's core constructs. Each construct was represented by a specific number of items, carefully determined to balance comprehensive coverage with respondent engagement and minimize survey fatigue.

The development process commenced with an extensive review of existing literature to identify established scales and inform the creation of items aligned with the study's objectives. While established instruments provided a foundation, the questionnaire was specifically designed and tailored to reflect the unique working conditions and challenges encountered by employees within special education centers. The development process was informed by, though not directly replicated from, the following key sources:

- **Organizational Commitment:** Guided by the work of Alrowwad et al. (2019), items were developed to assess affective, continuance, and normative commitment within the specific context of special education, focusing on commitment to the center, the profession, and a sense of mission.
- **Job Satisfaction:** Drawing upon the research of Dasari and Subrahmanyam (2019), items were created to measure satisfaction with various facets of the job, including interactions with students with special needs, collegial relationships, workload, and professional development opportunities.
- **Work Environment:** Informed by the insights of Ntoung et al. (2021), items were developed to assess both infrastructural and interpersonal dimensions of the special education work environment, encompassing resource availability, interprofessional collaboration, physical safety, and supervisory support.

- **Occupational Stress:** Building on the research of Feng et al. (2022), items were developed to measure stressors specific to special education, such as student behavioral challenges, administrative burdens, emotional demands, and resource scarcity.
- **Employee Engagement:** Guided by the work of Gede and Huluka (2024), items were created to assess engagement with the specific tasks and responsibilities of special educators, including dedication and absorption in their work with students.
- **Turnover Intention:** Drawing upon the research of Purnomo and Bernarto (2023), items were developed to specifically assess the intention to leave the special education center, considering factors such as current job satisfaction and perceived alternative employment opportunities.

A detailed table in the Appendix provides a complete list of the developed questionnaire items, specifying the conceptual areas they address and the corresponding literature that informed their development. It is crucial to emphasize that while the literature provided a framework for questionnaire development, all items were specifically created for this study and do not directly reproduce items from the cited sources.

3.2 ITEM ADAPTATION AND CONTEXTUALIZATION

Items were meticulously adapted to ensure contextual relevance to the specific challenges and demands of special education settings. For instance, job satisfaction items were tailored to reflect the emotional and psychological demands inherent in working with special needs students, while work environment items were adjusted to capture both infrastructural and interpersonal aspects unique to special education centers. This adaptation process adhered to the following principles:

- **Source Review:** Each item was traced back to its original source to ensure alignment with established theoretical underpinnings.
- **Modification Process:** Adjustments were made through careful rephrasing and contextualization based on feedback obtained from domain experts.
- **Expert Consultation:** Experts in special education, human resources, and organizational behavior reviewed the adapted items for clarity, appropriateness, and relevance to the target population.

3.3 ITEM VALIDATION PROCEDURES

A rigorous validation process was implemented to ensure the psychometric soundness of the questionnaire, comprising expert review, a pilot study, and reliability testing.

3.3.1 EXPERT REVIEW

The questionnaire was subjected to review by experts in special education, human resources, and organizational behavior. These experts provided valuable feedback on the clarity, relevance, and appropriateness of the items for the target population. Based on their recommendations, adjustments were implemented, particularly regarding terminology to ensure universal comprehension across the diverse sample.

3.3.2 PILOT STUDY

A pilot study was conducted with 30 participants from special education centers. This pilot testing phase served to identify and address any issues related to clarity of wording, ambiguity in response options, and alignment with the study's objectives. Feedback from the pilot study resulted in minor refinements, including simplifying language and clarifying the Likert scale instructions.

3.3.3 RELIABILITY TESTING

Cronbach's alpha was employed to assess the internal consistency reliability of each construct. All resulting alpha values exceeded the generally accepted threshold of 0.7, indicating acceptable reliability across all constructs.

The number of items for each construct was determined based on a combination of theoretical importance, insights gleaned from the literature review, and findings from the pilot study. Some constructs, due to their multidimensional nature, required a greater number of items for comprehensive assessment, while others were represented with fewer items to maintain survey efficiency. Any items removed during the validation process were eliminated due to redundancy, low factor loadings, or expert recommendations indicating a misalignment with the construct's conceptual framework. The final questionnaire represents a balance between comprehensive assessment and respondent engagement, thereby minimizing the potential for survey fatigue.

3.4 DATA COLLECTION METHOD

3.4.1 SAMPLING FRAME

The target population comprised employees of special education centers in Pakistan, including educators, therapists, and administrative staff. A purposive sampling approach was used to target individuals working in these centers.

3.4.2 DATA COLLECTION PROCEDURE

An online questionnaire was distributed via Google Forms. Respondents were invited to participate through official emails sent to special education centers and through professional networks related to special education in Pakistan.

3.4.3 DATA COLLECTION TIMEFRAME

Data collection for this study occurred between October 2024 and November 2024. This timeframe was strategically chosen to maximize participation from special education centers while minimizing disruption to institutional schedules and workload fluctuations.

3.5 RATIONALE FOR USING PLS-SEM

PLS-SEM was selected for its suitability for this study's characteristics:

- **Sample Size:** PLS-SEM is well-suited for small to medium sample sizes, such as the 343 responses obtained in this study. While larger samples are always preferable, PLS-SEM's focus on variance explained makes it less dependent on very large samples compared to covariance-based SEM.
- **Complex Model:** This study examines a complex model involving multiple latent variables, including mediating and moderating relationships. PLS-SEM is particularly effective in handling such complex models, especially when the focus is on prediction and explaining variance in the dependent variables.
- **Non-Normal Data Distribution:** PLS-SEM does not assume normality in the data, which is a realistic assumption for survey data, especially when dealing with psychological or attitudinal measures. This robustness to non-normality is a significant advantage over covariance-based SEM, which is more sensitive to violations of normality assumptions.

- **Exploratory Nature of the Study:** Given the exploratory nature of this research, which seeks to examine specific pathways and relationships, PLS-SEM's predictive capabilities and its focus on explaining variance in the endogenous variables are particularly advantageous.

3.6 STATISTICAL ANALYSIS

To ensure the robustness of the statistical analysis and the validity of the conclusions, the following procedures were employed:

3.6.1 DEMOGRAPHIC DATA ANALYSIS (SPSS)

SPSS software was used to analyze the demographic data collected from participants. Descriptive statistics were calculated to provide an overview of the sample characteristics (e.g., age, gender, marital status, work tenure, and type of organization). This analysis provided a better understanding of the sample distribution and its potential influence on the study results.

3.6.2 MEASUREMENT MODEL ANALYSIS

The measurement model was evaluated to assess the validity and reliability of the constructs. The following tests were employed:

- **Reliability and Validity Tests:** Cronbach's alpha was used to assess the internal consistency of each construct. Convergent validity was evaluated using Average Variance Extracted (AVE).
- **Fornell-Larcker Criterion:** This criterion was used to assess discriminant validity.
- **Heterotrait-Monotrait Ratio (HTMT):** HTMT was employed as a more stringent test for discriminant validity.

3.6.3 STRUCTURAL MODEL ANALYSIS

The structural model focused on testing the hypothesized relationships between the constructs.

- **Path Coefficients and Hypothesis Testing:** Path coefficients were used to evaluate the strength and direction of the relationships. Hypothesis testing was conducted using bootstrapping in SmartPLS, providing t-statistics and p-values.

3.7 ETHICAL CONSIDERATIONS

Ethical approval was obtained from the University of Karachi's research ethics board. Participants were fully informed about the study's purpose, their voluntary participation, and their right to withdraw at any time. Anonymity and confidentiality were ensured, and informed consent was obtained from all participants prior to participation. Ethical guidelines were adhered to throughout the study.

4 RESULT

4.1 DEMOGRAPHIC ANALYSIS

Table 1 provides an overview of the demographic and professional attributes of the special educators in the sample. The data highlights that the sample is diverse in terms of gender, age, marital status, work tenure, and organizational type.

Table 1: Profile of Respondent

Category	Subcategory	Frequency	Percentage (%)
Gender	Male	103	30.03
	Female	240	69.97
Age	21 -30 years	137	39.94
	31 - 40 years	120	34.99
	Above 40 years	86	25.07
Material Status	Married	120	34.98
	Not married	223	65.02
Work Tenure	Less than 1 years	119	34.70
	1 - 5 years	172	50.15
	More than 5 years	52	15.16
Type of Organization	Private	192	55.98
	Public	151	44.02

Source: Own Research

Table I presents the demographic profile of the 343 respondents, revealing key characteristics of the workforce in Pakistani special education centers. Regarding gender, the sample is predominantly female, with 240 respondents (69.97%) compared to 103 males (30.03%). This confirms the established trend in special education, where women constitute a significant majority. Age-wise, the largest segment of respondents, 137 individuals (39.94%), falls within the 21–30-year age bracket, indicating a relatively young workforce. A substantial proportion, 120 respondents (34.99%), are aged 31–40 years, while 86 respondents (25.07%) are over 40 years old, representing the more experienced professionals. In terms of marital status, a clear majority of 223 respondents (65.02%) are unmarried, while 120 respondents (34.98%) are married, consistent with the youthful age distribution. Work tenure data indicates that 172 respondents (50.15%) have between one and five years of experience, and 119 respondents (34.70%) have less than one year, highlighting a workforce largely in the early stages of their careers. Only 52 respondents (15.16%) have more than five years of experience, raising potential concerns about long-term retention. Finally, the distribution across organizational types reveals a slightly higher representation from private institutions, with 192 respondents (55.98%), compared to 151 respondents (44.02%) from public organizations, underscoring the increasing contribution of non-governmental entities.

4.2 MEASUREMENT MODEL

The outer loadings show high agreement between the observed variables and the "Construct Reliability & Validity" table presents reliability analysis for each construct, including average variance extracted (AVE), composite reliability (rho_a and rho_c), and Cronbach's alpha. All constructs have great internal consistency and dependability, with Cronbach's alpha values ranging from 0.939 to 0.974. High composite reliability measures (rho_a and rho_c) with values over 0.94 for all constructs further reaffirm the measurement approach's dependability.

Table 2: Reliability and Validity Tests

Constructs	Items	Outer Loadings	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Employee Engagement	EE1	0.942	0.978	0.979	0.984	0.939
	EE2	0.965				
	EE3	0.988				
	EE4	0.981				

Employee Turnover Intension	ETI1	0.938	0.962	0.965	0.972	0.898
	ETI2	0.950				
	ETI3	0.961				
	ETI4	0.941				
Job Satisfaction	JST1	0.828	0.873	0.882	0.912	0.723
	JST2	0.870				
	JST3	0.863				
	JST4	0.838				
Organizational Commitment	OC1	0.849	0.892	0.938	0.921	0.746
	OC2	0.849				
	OC3	0.931				
	OC4	0.822				
Occupational Stress	OS1	0.961	0.965	0.966	0.975	0.905
	OS2	0.927				
	OS3	0.955				
	OS4	0.963				
Work Environment	WE1	0.954	0.974	0.976	0.981	0.928
	WE2	0.969				
	WE3	0.963				
	WE4	0.967				
Work Environment × Job Satisfaction	WE ×JST	1.000				

Source: Own Research

The dependability of each construct is indicated by the square root of the Average Variance Extracted (AVE) on the diagonal in the Fornell-Larcker criterion table. The correlations between the constructs are shown by the off-diagonal numbers.

Table 3: Fornell-Larcker criterion

	EE	ETI	JST	OC	OS	WE
EE	0.969					
ETI	-0.571	0.948				
JST	0.801	-0.653	0.850			
OC	0.664	-0.616	0.795	0.864		
OS	-0.676	0.540	-0.605	-0.521	0.952	
WE	0.843	-0.520	0.701	0.611	-0.805	0.963

Source: Own Research

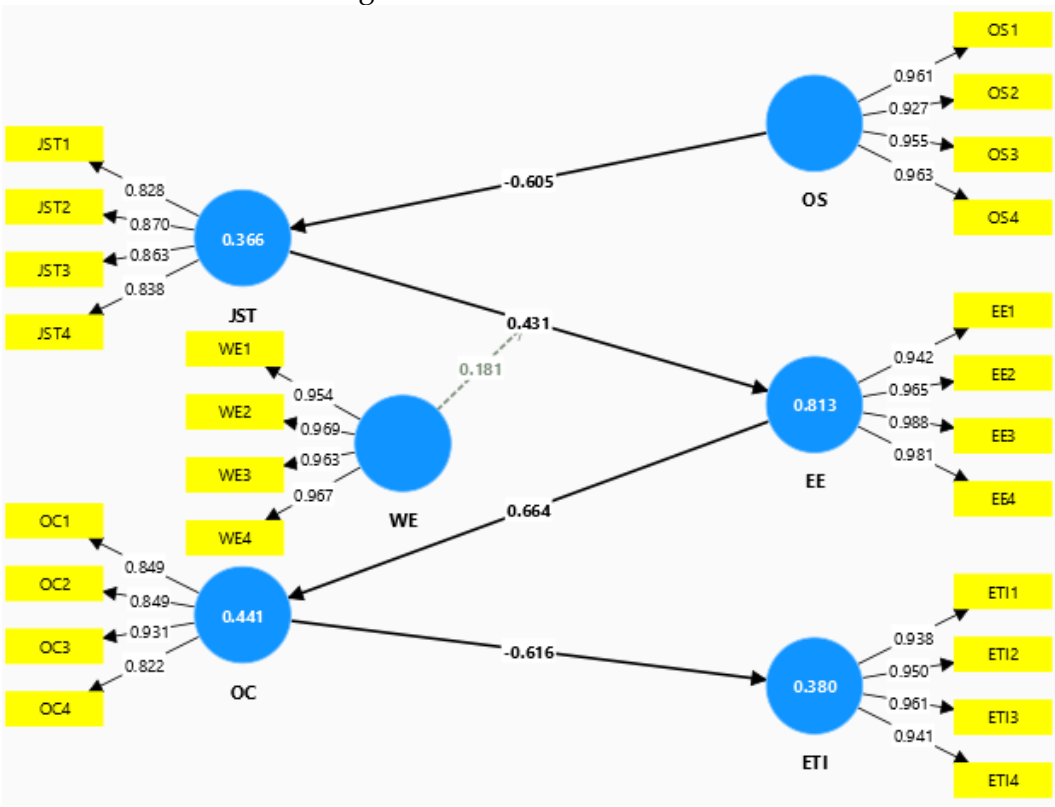
Additionally, the HTMT approach—which offers a novel method for assessing discriminant validity—was used to analyses the discriminant validity.

Table 4: Heterotrait-monotrait ratio (HTMT) – Matrix

	EE	ETI	JST	OC	OS	WE	WE x JST
EE							
ETI	0.584						
JST	0.857	0.705					
OC	0.655	0.631	0.862				
OS	0.696	0.560	0.650	0.499			
WE	0.862	0.534	0.752	0.596	0.832		
WE x JST	0.576	0.200	0.364	0.293	0.524	0.592	

Source: Own Research

Figure 2: Measurement Model



Source: Author's own elaboration

4.3 STRUCTURAL MODEL

SmartPLS 4.0 was used for the structural model analysis, and bootstrapping was used to evaluate the coefficient validity, bootstrapping produces subsamples with replacement that shed light on the stability of the coefficients. For path coefficients, SmartPLS shows t-values; the significance level is normally set at $p < 0.05$.

Table 5: Path Coefficients/Hypothesis Test

Hypotheses		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P Value	Verdict
H1:	EE -> OC	0.664	0.665	0.051	12.988	0.000	Supported
H2:	JST -> EE	0.431	0.422	0.087	4.935	0.000	Supported
H3:	OC -> ETI	-0.616	-0.621	0.078	7.893	0.000	Supported
H4:	OS -> JST	-0.605	-0.609	0.083	7.275	0.000	Supported
H5:	WE -> EE	0.449	0.459	0.117	3.850	0.000	Supported
H6:	WE x JST -> EE	0.181	0.174	0.092	1.959	0.025	Supported

Source: Own Research

H1: Employee Engagement (EE) → Organizational Commitment (OC) Employee Engagement has a **strong, positive effect** on Organizational Commitment (**β = 0.664, p < 0.000**). This underscores the importance of fostering engagement to enhance employees' emotional and professional commitment to their organizations.

H2: Job Satisfaction (JST) → Employee Engagement (EE) Job Satisfaction **positively influences** Employee Engagement (**β = 0.431, p < 0.000**). Satisfied employees are more likely to be engaged, highlighting the role of intrinsic and extrinsic job factors in shaping workforce engagement.

H3: Organizational Commitment (OC) → Employee Turnover Intention (ETI) Organizational Commitment **significantly reduces** Employee Turnover Intention (**β = -0.616, p < 0.000**). This finding emphasizes the protective effect of commitment in retaining employees, particularly in challenging sectors like special education.

H4: Occupational Stress (OS) → Job Satisfaction (JST) Occupational Stress **negatively impacts** Job Satisfaction (**β = -0.605, p < 0.000**). This aligns with theoretical perspectives that stress diminishes job contentment, with potential downstream effects on engagement and performance.

H5: Work Environment (WE) → Employee Engagement (EE) Work Environment **positively affects** Employee Engagement (**β = 0.449, p < 0.000**). Supportive and resourceful work settings foster higher engagement levels, which can translate into better organizational outcomes.

H6: Work Environment (WE) × Job Satisfaction (JST) → Employee Engagement (EE) The interaction between Work Environment and Job Satisfaction **positively moderates** Employee Engagement (**β = 0.181, p = 0.025**). This suggests that a favorable work environment strengthens the positive influence of job satisfaction on engagement, reinforcing the importance of workplace conditions in driving employee motivation.

Table 6: Mediation Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P Value	Verdict
OS -> JST -> EE	-0.261	-0.254	0.055	4.717	0.000	Supported
EE -> OC -> ETI	-0.409	-0.413	0.061	6.726	0.000	Supported

Source: Own Research

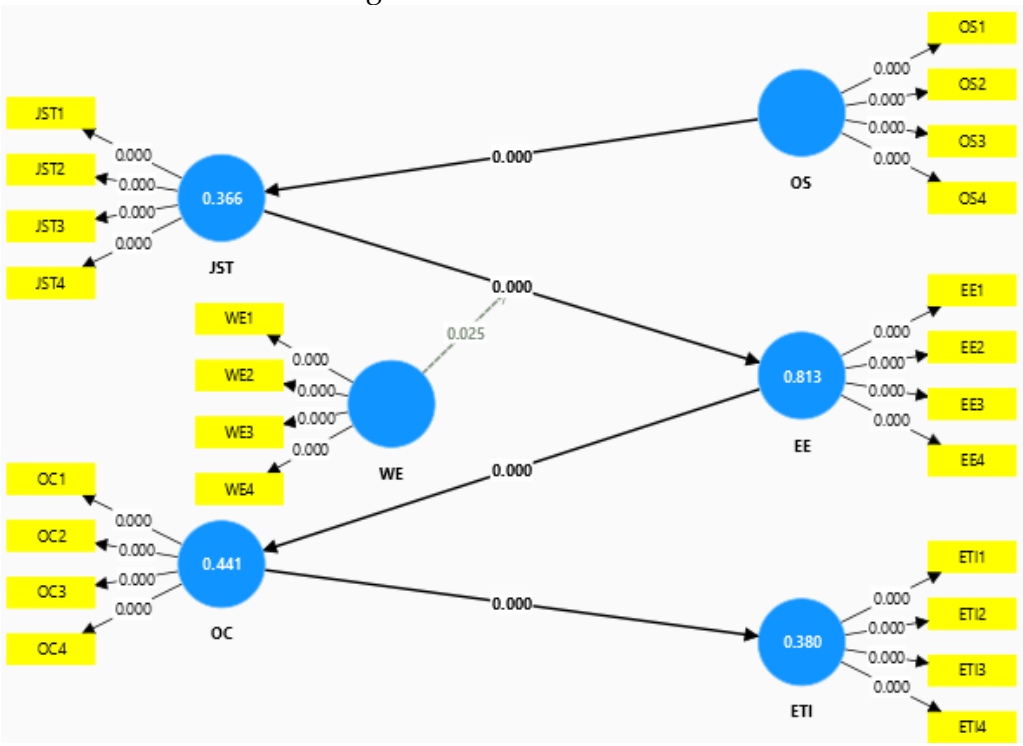
OS → JST → EE (-0.261, p = 0.000, T = 4.717)

Job Satisfaction significantly mediates the relationship between Occupational Stress and Employee Engagement. The negative β (-0.261) suggests that higher Occupational Stress reduces Job Satisfaction, which in turn lowers Employee Engagement. The T-statistic (4.717) is well above the common threshold of 1.96, confirming statistical significance.

EE → OC → ETI (-0.409, p = 0.000, T = 6.726)

Organizational Commitment significantly mediates the relationship between Employee Engagement and Employee Turnover Intention. The negative β (-0.409) suggests that higher Employee Engagement increases Organizational Commitment, which in turn reduces Turnover Intention. The T-statistic (6.726) is very high, reinforcing the strength and significance of this mediation effect.

Figure 3: Structural Model



Source: Author's own elaboration

5 DISCUSSION

This study delves into the intricate interplay of Organizational Commitment (OC), Job Satisfaction (JST), Employee Engagement (EE), Work Environment (WE), Occupational Stress (OS), and Turnover Intention (ETI) within the unique context of Pakistani special education centres. Understanding these relationships is paramount for enhancing employee well-being, fostering retention, and ultimately improving the quality of education provided to students with special needs.

5.1 MEDIATING ROLES

The study provides strong support for the mediating role of organizational commitment in the relationship between employee engagement and turnover intention (-0.409, p = 0.000), consistent with Social Exchange Theory within the Pakistani context. Employees in special education centres frequently develop strong connections with their students and institutions, making organizational commitment a crucial factor in mitigating turnover. The emotionally demanding nature of working with children with special needs requires a high degree of commitment to navigate inherent challenges. This emotional connection, cultivated by organizational commitment, can mitigate the negative effects of stress and workplace difficulties, as employees are more likely to remain in organizations where they feel valued. This aligns with Ampofo and Karatepe's (2022) finding that employees with strong on-the-job embeddedness exhibit higher organizational commitment, which subsequently enhances engagement and reduces turnover intention. Furthermore, Haque et al. (2019) demonstrated the crucial role of organizational commitment in reducing turnover intentions, reinforcing the importance of cultivating commitment for retaining skilled personnel. Nevertheless, the limited professional development opportunities and financial constraints common in this sector may gradually erode this commitment, underscoring the necessity of targeted retention strategies.

The mediation analysis confirmed a statistically significant mediating role of job satisfaction in linking occupational stress and employee engagement (β = -0.261, p < 0.000). However, the statement that this effect

was 'less pronounced than anticipated' refers to a comparison with effect sizes observed in previous research within similar contexts. While the β value indicates a strong mediating effect, we expected a larger magnitude based on prior studies. This discrepancy suggests that other factors may play a more significant role in this specific context. Within Pakistani special education centres, educators often experience considerable emotional strain and limited financial incentives, making job satisfaction a complex construct. Consequently, intrinsic motivation, a strong commitment to student success, and stress-coping mechanisms, as highlighted by Pinelli et al. (2024), may function as crucial protective factors, buffering the direct negative effects of occupational stress. To enhance job satisfaction within this context, institutions should prioritize employee emotional well-being, provide clear career development pathways, and implement structured mentorship programs.

5.2 Moderating Role

The study confirms the moderating role of a supportive work environment on the relationship between job satisfaction and employee engagement. In Pakistani special education centres, limited resources, inadequate administrative support, and insufficient professional development opportunities frequently contribute to workplace stress. The findings align with the of Bowen Xue et al. (2024), which emphasize the vital role of a supportive work environment—characterized by reduced workload, emotional support, and teamwork—in enhancing work engagement and mitigating turnover intention. Institutions that cultivate collaborative teamwork, transparent leadership, and robust mental health initiatives can significantly improve both job satisfaction and engagement. Therefore, special education centres must implement policies that foster a more inclusive, well-resourced, and emotionally supportive work environment to enable educators to thrive in their roles.

5.3 KEY PREDICTORS

Occupational stress emerged as a significant predictor of employee turnover intention, exerting both direct and indirect impacts on employee engagement through diminished job satisfaction. This aligns with Conservation of Resources (COR) theory, emphasizing that constant exposure to emotionally demanding students, administrative pressures, and a lack of professional recognition leads to exhaustion and increased turnover. Special education centres in Pakistan require stress-reduction interventions, such as peer counselling, workload redistribution, and emotional resilience training, to retain skilled educators.

5.4 CULTURAL CONTEXT AND LIMITATIONS

The findings of this study are deeply embedded within the Pakistani socio-cultural context, a complex interplay of collectivist values, religious influences, economic realities, and gender dynamics. These factors significantly shape employee behavior, motivations, and challenges within special education centers.

- **Collectivism and Social Responsibility:** Pakistan is a collectivist society where family and community ties are highly valued. This collectivist mindset often translates into a strong sense of social responsibility, particularly towards vulnerable populations like children with special needs. Many educators in special education are driven by a deep sense of duty and a desire to contribute to their community. This can explain the observed resilience and commitment despite challenging working conditions. However, this same collectivism can also create pressure to conform and avoid expressing dissent, potentially hindering open communication about workplace issues.
- **Religious Influences:** Religious values, particularly Islam, play a significant role in Pakistani culture. Concepts like *Sabr* (patience) and *Khidmat* (service) are highly regarded. These values can reinforce the commitment of special education teachers, encouraging them to persevere through difficulties and view their work as a form of service. Religious beliefs can also provide a source of comfort and strength

in the face of emotional challenges. However, it's crucial to acknowledge that religious interpretations and practices vary, and their influence on individual behavior can be complex.

- **Economic Realities:** Pakistan faces significant economic challenges, including widespread poverty and limited government funding for social services like special education. This translates into under-resourced special education centers, often lacking adequate teaching materials, assistive technology, and qualified staff. Financial constraints can lead to low salaries for teachers, impacting job satisfaction and contributing to turnover. Furthermore, many teachers may need to supplement their income through additional jobs, leading to increased workload and stress.
- **Gender Dynamics:** The education sector in Pakistan, particularly at the primary and special education levels, is often dominated by women. Traditional gender roles can place additional burdens on female teachers, who may be responsible for childcare and household duties in addition to their professional responsibilities. This can contribute to work-life balance challenges and increase the risk of burnout. Furthermore, women in some contexts may face limitations in career advancement opportunities due to societal expectations.
- **Limitations Related to Context:** The sample size (343 respondents), while reasonable, may not fully capture the diversity of experiences within Pakistan. The study may be biased towards urban centers, potentially overlooking the unique challenges faced by special education centers in rural areas, where resources are often even scarcer and teacher turnover rates may be higher. Furthermore, the study may not have adequately captured the perspectives of male teachers in special education, who may face different challenges and societal expectations. Future research should strive for more representative samples that include diverse geographic locations and consider the intersectionality of gender, socioeconomic status, and other demographic factors.
- **Impact on Findings:** The limited professional development opportunities and financial constraints common in this sector, as mentioned in the original discussion, are directly linked to the broader economic context. These factors may gradually erode organizational commitment, despite the initial strong connections employees may feel. This underscores the necessity of targeted retention strategies that address both financial and non-financial needs. The finding that job satisfaction was less pronounced than anticipated as a mediator might be explained by the strong intrinsic motivation and commitment to student success driven by cultural and religious values. However, this does not diminish the importance of addressing job satisfaction, as long-term sustainability requires a more holistic approach that considers both intrinsic and extrinsic factors.

5.5 THEORETICAL INSIGHTS

This study contributes to existing theoretical frameworks by contextualizing them within the unique environment of Pakistani special education centers. It specifically enriches the Job Demands-Resources (JD-R) model, Conservation of Resources (COR) theory, and Social Exchange Theory.

- **Job Demands-Resources (JD-R) Model:** This study confirms the JD-R model's relevance in special education. The high emotional demands of working with students with special needs, coupled with limited resources (e.g., funding, materials, support staff) and a potentially unsupportive work environment, contribute to occupational stress and burnout. Conversely, factors like organizational commitment and a supportive work environment act as resources that can buffer the negative effects of job demands and promote employee engagement. Future research could further explore the specific job demands and resources most relevant to special education teachers in Pakistan, potentially leading to tailored interventions.
- **Conservation of Resources (COR) Theory:** The findings strongly align with COR theory. The constant exposure to emotionally demanding situations, coupled with administrative pressures and a perceived lack of professional recognition, can deplete teachers' resources (e.g., emotional energy, sense of competence). This resource depletion leads to exhaustion, reduced job satisfaction, and

ultimately, increased turnover intention. The study highlights the need for interventions that help teachers conserve and replenish their resources, such as stress-reduction programs, peer support groups, and opportunities for professional development.

- **Social Exchange Theory:** The study provides strong support for the mediating role of organizational commitment in the relationship between employee engagement and turnover intention, consistent with Social Exchange Theory. When employees feel valued and supported by their organization (a positive social exchange), they are more likely to develop strong organizational commitment. This commitment, in turn, fosters engagement and reduces the likelihood of leaving. However, the study also reveals that limited professional development opportunities and financial constraints can erode this commitment over time, highlighting the importance of equitable and reciprocal exchanges to maintain long-term employee engagement.

5.6 FUTURE DIRECTIONS

Future research should explore several key areas to build on these theoretical insights. Integrating psychological contract theory would illuminate the impact of unmet employee expectations on turnover. A comparative analysis with mainstream education could identify unique stressors in special education and inform tailored interventions. Deepening the understanding of cultural influences, such as collectivism and religious values, requires qualitative research to capture nuanced experiences. Investigating the long-term psychological impact of stress on educators and its effects on student outcomes is crucial. Qualitative exploration of special education professionals' lived experiences in Pakistan is essential for developing targeted interventions. Finally, future studies should focus on creating and evaluating culturally sensitive intervention frameworks designed for low-resource settings, considering feasibility and sustainability.

5.7 RECOMMENDATIONS FOR SPECIAL EDUCATION CENTERS IN PAKISTAN

To enhance employee well-being and retention in Pakistani special education centres, institutions should implement tailored, sector-specific interventions:

5.7.1 ENHANCE EMPLOYEE ENGAGEMENT:

- **Specific Action 1 (Professional Development):** Partner with local universities or educational experts to create workshops specifically addressing trauma-informed teaching practices, managing challenging behaviors (e.g., autism, ADHD), and building emotional resilience. These workshops should be hands-on and practical, not just theoretical. *Example: A workshop on "Practical Strategies for De-escalating Meltdowns in the Classroom."*
- **Specific Action 2 (Recognition):** Implement a "Teacher of the Month" program that goes beyond just academic achievement. Focus on recognizing educators who demonstrate exceptional compassion, creativity in adapting teaching methods, or commitment to student well-being. *Example: Award a small bonus, a certificate of appreciation, or feature the teacher's story in a school newsletter.*
- **Specific Action 3 (Peer Support):** Establish regular support group meetings facilitated by a trained counselor or a senior teacher. These meetings should provide a safe space for teachers to share experiences, challenges, and coping strategies. *Example: Monthly "Teacher Wellness Circles" held after school hours.*
-

5.7.2 IMPROVE THE WORK ENVIRONMENT:

- **Specific Action 1 (Administrative Support):** Conduct regular feedback sessions with teachers to understand their needs and concerns. Actively address issues like lack of resources, unclear

communication, or inconsistent disciplinary policies. *Example: Implement a system for teachers to anonymously submit suggestions and concerns to administration.*

- **Specific Action 2 (Resources & Assistants):** Conduct a thorough assessment of classroom needs and allocate resources accordingly. Prioritize hiring and training classroom assistants, especially for classrooms with students who require significant individual support. *Example: Develop a budget proposal outlining the need for additional teaching aids, assistive technology, and classroom assistants.*
- **Specific Action 3 (Well-being Programs):** Partner with local mental health professionals to offer on-site counseling services or workshops on stress management techniques (e.g., mindfulness, yoga). Ensure these services are confidential and easily accessible. *Example: Offer free weekly yoga classes for teachers after school.*

5.7.3 ADDRESS OCCUPATIONAL STRESS:

- **Specific Action 1 (Flexible Work):** Explore options for flexible work arrangements, such as part-time schedules or compressed workweeks, especially for teachers experiencing burnout or those with family responsibilities. *Example: Offer the option to work a four-day week with longer hours each day.*
- **Specific Action 2 (Mentorship):** Create a structured mentorship program pairing experienced teachers with new hires. Mentors can provide guidance on classroom management, curriculum adaptation, and navigating the emotional challenges of the job. *Example: Develop a mentorship handbook and provide training for mentors.*
- **Specific Action 3 (Stress Reduction):** Offer workshops on mindfulness and stress reduction techniques. Promote work-life balance by encouraging teachers to take breaks, avoid bringing work home, and utilize available vacation time. *Example: Organize a "Wellness Week" with activities focused on relaxation and stress reduction.*

5.7.4 STRENGTHEN ORGANIZATIONAL COMMITMENT:

- **Specific Action 1 (Career Development):** Develop clear career pathways for teachers, outlining opportunities for professional growth and advancement. Offer training and development programs to enhance their skills and knowledge. *Example: Partner with universities to offer specialized certifications in special education.*
- **Specific Action 2 (Inclusive Culture):** Foster a culture of open communication, respect, and appreciation. Regularly acknowledge and celebrate teachers' contributions and achievements. *Example: Implement a system for peer recognition and appreciation.*
- **Specific Action 3 (Financial Incentives):** Explore options for performance-based bonuses or other financial incentives to reward teachers for their dedication and hard work. Advocate for better salaries and benefits for special education teachers. *Example: Research and propose a salary scale that is competitive with other educational institutions.*

By implementing these more specific and actionable steps, HR professionals in Pakistani special education centers can create a more supportive and sustainable work environment for their teachers, ultimately leading to improved well-being and retention. Remember to adapt these recommendations to the specific context and resources of each individual center.

6 CONCLUSION

The study provides valuable insights into the multifaceted factors influencing employee well-being and retention within the unique context of Pakistani special education centres. The findings underscore the critical role of organizational commitment in mitigating employee turnover, highlighting the need for strategies that foster strong emotional connections between employees and their institutions. This includes cultivating a

supportive and inclusive work environment, providing opportunities for professional growth, and implementing effective recognition programs for employee contributions. Furthermore, the study emphasizes the detrimental impact of occupational stress on employee engagement and job satisfaction. Implementing effective stress-reduction interventions, such as peer support programs, mindfulness training, and flexible work arrangements, is crucial for mitigating these negative effects and ensuring the long-term well-being of educators.

The study also highlights the limitations of relying solely on traditional job satisfaction factors, such as salary and benefits, to retain employees in this sector. Recognizing the intrinsic motivations and strong sense of purpose often driving educators in special education, the findings emphasize the importance of fostering a supportive work environment, providing opportunities for personal and professional growth, and acknowledging their unique contributions. These findings have significant implications for policymakers, administrators, and educators in Pakistan. By prioritizing employee well-being and implementing targeted interventions to address the specific challenges faced by educators in special education centres, institutions can create a more sustainable and supportive work environment, improve employee retention, and ultimately enhance the quality of education provided to students with special needs.

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APPENDIX:

Job Satisfaction:

1. I am satisfied with the compensation and benefits provided by my organization.
2. I feel content with my current job in the special education sector.
3. I am satisfied with my supervisor's leadership and support.
4. I feel there are sufficient opportunities for career advancement within my organization.

Work Environment:

1. My workplace is conducive to concentration, with minimal distractions.
2. My workplace has sufficient natural and artificial lighting for optimal performance.
3. My workplace is well-maintained and clean.
4. I feel physically safe while working in my current environment.

Organizational Commitment:

1. I share the core values of my organization.
2. I am willing to contribute beyond my duties to help advance the organization.
3. The success of my organization directly impacts my personal satisfaction and growth.
4. I would stay with my organization even if a higher-paying opportunity arose elsewhere.

Occupational Stress:

1. The workload in my current job often exceeds my capabilities.
2. I often feel unclear about my role and the tasks expected of me.
3. I do not feel there are enough opportunities for professional growth in my current position.
4. I feel I am not given sufficient authority or resources to perform my job effectively.

Turnover Intention:

1. I frequently consider leaving my current job.
2. I am dissatisfied with my current workplace and its conditions.
3. I believe there may be a better job opportunity outside of my current organization.
4. I would consider switching employers even if the pay remains the same.

Employee Engagement:

1. I feel motivated and enthusiastic about the tasks and responsibilities of my job.
2. I am dedicated to achieving the objectives and goals set by my team.
3. I actively seek opportunities to improve my professional skills and knowledge.
4. I feel that my contributions are recognized and appreciated by my organization.

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Declaration of AI and AI-assisted technologies in the writing process

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