

The Mediating Role of Job Crafting in the Relationship between Employee Resilience and Work Engagement Evidence from the Egyptian Healthcare Sector

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Abstract. The healthcare sector in Egypt operates under intense pressure due to high patient loads, limited resources, and a growing demand for quality care. These challenges, intensified in the post-pandemic era, have raised critical concerns regarding the psychological well-being and sustained engagement of healthcare professionals. This study investigates how employee resilience, defined as the capacity to recover from adversity and adapt to workplace demands, influences work engagement—a vital psychological state characterized by vigor, dedication, and absorption. Specifically, the study explores the mediating role of job crafting, a proactive behavioral strategy through which employees reshape their job tasks, relationships, and perceptions to better align with their skills, values, and interests. Grounded in the Job Demands–Resources (JD–R) theory, which posits that both personal and job resources play a central role in employee motivation and engagement, this research examines whether job crafting acts as a behavioral mechanism that transmits the positive effects of resilience on engagement. A quantitative cross-sectional survey was conducted among 400 full-time healthcare professionals in both public and private hospitals across Egypt. The study employed Structural Equation Modeling (SEM) using Smart PLS 4.0 to analyze the hypothesized direct and indirect relationships between the constructs. The results indicate that employee resilience has a strong and statistically significant positive effect on both job crafting and work engagement. More importantly, job crafting was found to partially mediate the relationship between resilience and engagement. These findings suggest that while resilient employees are more likely to remain engaged, the presence of proactive job crafting behaviors enhances this relationship further. In essence, resilience equips healthcare workers with the psychological strength to cope with challenges, while job crafting provides the behavioral tools to actively shape more meaningful, manageable, and motivating work environments. The study contributes to the theoretical development of the JD–R model by empirically validating a mediation model in a high-stress, under-researched context: the Egyptian healthcare system. It also supports Conservation of Resources (COR) theory, reinforcing the idea that resilient individuals not only preserve internal resources but also invest them in proactive behaviors that generate further resources and positive outcomes. From a practical perspective, the research highlights the importance of investing in both psychological and behavioral development among healthcare workers. Hospital administrators, HR practitioners, and policymakers should consider implementing resilience training programs, offering flexible job design opportunities, and fostering a supportive environment that encourages job crafting. These initiatives can enhance work engagement, reduce burnout, and ultimately improve the quality and sustainability of healthcare services in Egypt.

Keywords: Conservation of resources theory, Employee resilience, Job crafting, Healthcare sector, Egypt, Job Demands–resources theory, Psychological capital, Structural equation modeling, Work engagement.

1. INTRODUCTION

The healthcare industry in Egypt, akin to several worldwide health systems, has experienced considerable strain and transformation in recent years, particularly intensified by the COVID-19 epidemic and its lasting effects. The pressures have heightened the psychological and operational demands on healthcare professionals, resulting in an increased interest in examining how individual-level factors like employee resilience, job crafting, and work engagement interact to maintain workforce productivity and well-being (Han, 2023; Ibrahim & Hussein, 2024). Resilience has become an essential psychological asset that allows healthcare professionals to adapt to change, manage hardship, and sustain performance under pressure (Van Wingerden & Poell, 2019). Nevertheless, resilience alone may prove inadequate. Employees necessitate a sense of autonomy and control over their positions. Job crafting, characterized as the self-directed modifications people implement to align their roles with their preferences, abilities, and interests, is crucial (Wrzesniewski & Dutton, 2001). Job crafting allows healthcare professionals to proactively modify their activities, relationships, or cognitive interpretations of work to augment meaning and mitigate pressures (Bakker et al., 2015). Individuals that participate in job creating tend to report elevated work engagement, defined by energy, devotion, and absorption in their duties (Bakker & Demerouti, 2017). The relationship among resilience, job crafting, and engagement has significant consequences for the healthcare system in Egypt. A recent study of Egyptian engineers revealed a substantial positive correlation between resilience and work engagement ($r = 0.356$) as well as job satisfaction ($r = 0.608$), underscoring the efficacy of resilience in improving organizational outcomes (Ibrahim & Hussein, 2024). Although data highlights resilience as a predictor of favorable job outcomes, the mechanisms that convert resilience into work engagement—particularly in high-pressure healthcare environments—are still insufficiently examined. Job crafting may act as a crucial mediating variable in this relationship, providing employees with a behavioral mechanism to transform their resilience into enhanced engagement and well-being (Van Wingerden & Poell, 2019; Zampetakis, 2022).

This study tackles the inadequate empirical comprehension of the interrelationship among the three constructs—resilience, job crafting, and engagement—in Egyptian healthcare facilities. While international studies have established these connections (Baghdadi et al., 2020; Han, 2023), there is a deficiency of localized data from Egyptian healthcare professionals. Considering the distinct structural, cultural, and resource-related challenges within the Egyptian healthcare context—such as personnel shortages, inadequate mental health services, and bureaucratic limitations—the dynamics of resilience and engagement may vary considerably from those seen in other environments. This study is significant due to its ability to guide strategic human resource practices in Egyptian hospitals. Improving work engagement is positively associated with superior patient outcomes, less turnover, and enhanced organizational performance (Bakker et al., 2018). Furthermore, comprehending how healthcare personnel might proactively shape their roles to enhance their resilience provides a more durable and empowering strategy for workforce development, particularly in contexts where structural modifications may be sluggish or challenging to execute (Magdy, 2023). This study aims to accomplish several primary objectives. The primary objective is to examine the direct correlation between employee resilience and job crafting among healthcare professionals in Egypt. Secondly, it investigates the favorable correlation between job crafting and work engagement. Thirdly, and most importantly, the study examines the mediating function of job crafting in the link between resilience and work engagement. These aims are informed by the Job Demands-Resources (JD-R) theory, which asserts that personal resources (e.g., resilience) and job resources (e.g., autonomy, feedback) interact to affect employee motivation and well-being (Demerouti et al., 2001; Bakker & Demerouti, 2017). From a pragmatic perspective, recognizing implementable strategies for improving engagement via job crafting and resilience can aid HR professionals, hospital administrators, and policymakers in formulating interventions that bolster healthcare worker well-being and enhance institutional resilience. Interventions that promote reflective practices, peer support systems, or task reallocation opportunities may enable staff to actively shape their roles, thereby converting psychological resilience into significant and enduring involvement (Sakuraya et al., 2020). This study enhances theoretical comprehension and practical implementation by addressing deficiencies in existing studies about resilience, job crafting, and participation in healthcare. It operates inside the under-explored realm of Egyptian healthcare institutions, providing innovative insights that are pertinent both locally and globally. In a time when the healthcare staff faces extraordinary strain, activating internal mechanisms that promote engagement is not merely an intellectual endeavor—it is a strategic necessity.

2. CONCEPTUAL MODEL

2.1. Employee Resilience

Employee resilience is defined as an individual's ability to endure, adapt to, and recuperate from adversity, stress, and organizational change. It encompasses more than mere pressure management; it signifies a dynamic psychological resilience that enables the individual to not only endure problems but also to develop and flourish in their presence. In the workplace, resilience facilitates sustained performance, emotional stability, and the ability to recover from setbacks such as workload pressure, interpersonal conflict, or organizational change. Employees exhibiting strong resilience tend to be more positive, proactive, and emotionally regulated, allowing them to sustain engagement and motivation under challenging circumstances. Studies indicate that resilient individuals have enhanced problem-solving skills, superior emotional intelligence, and increased receptiveness to learning—attributes that facilitate their positive and constructive adaptation to changing employment requirements. “Employee resilience refers to an employee's capacity to adapt and flourish in dynamic and challenging work environments by positively responding to stressors and sustaining functionality” (Wut et al., 2022).

2.2. Job Crafting

Job crafting refers to the proactive efforts made by employees to modify the boundaries of their job in order to improve the fit between their work and personal attributes such as skills, values, or interests. It encompasses three primary forms: task crafting (changing the scope or type of tasks), relational crafting (altering interactions with colleagues or clients), and cognitive crafting (changing how one perceives the purpose or meaning of work). Unlike traditional top-down job design approaches led by management, job crafting is an employee-initiated process that reflects autonomy and self-regulation. It allows individuals to optimize their work experience by increasing job resources (e.g., autonomy, learning opportunities), minimizing hindering demands, and seeking more meaningful, challenging, or enjoyable aspects of their role. Engaging in job crafting is associated with multiple positive outcomes including increased job satisfaction, motivation, creativity, and most notably, work engagement. It serves as a behavioral mechanism through which individuals enhance their psychological ownership of their work and create conditions that sustain long-term well-being and performance. “Job crafting involves changes that employee make to the task, relational, and cognitive boundaries of their work to create a better fit between their job and their preferences” (Petrou et al., 2015).

2.3. Work Engagement

Work engagement is a favorable, work-related psychological state defined by three fundamental dimensions: energy, devotion, and immersion. Vigor denotes elevated energy and resilience throughout work activities. Dedication entails a profound engagement in one's work, accompanied by a sense of importance, fervor, and challenge. Absorption refers to a state of complete focus and enjoyment in one's activities, resulting in the swift passage of time and difficulty in disengaging from work. In contrast to job satisfaction, which denotes an evaluative assessment of one's employment, work engagement is characterized by a more motivated and dynamic essence. It indicates the extent of an employee's emotional and cognitive investment in their position. Engaged employees generally exhibit increased productivity, innovation, corporate citizenship behavior, and reduced rates of burnout or turnover intention. Work engagement is affected by personal resources, including resilience, optimism, and self-efficacy, as well as job resources, such as social support, autonomy, feedback, and developmental chances. It is an essential factor in sustainable performance and personnel retention inside contemporary firms. Work engagement is characterized as a favorable, work-related psychological condition distinguished by vitality, dedication, and absorption (Bakker & Demerouti, 2008; Cooke et al., 2016).

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Employee Resilience and Job Crafting

In contemporary, volatile work environments, employee resilience has become an essential human asset that allows individuals to effectively adjust to workplace pressures, uncertainties, and transformations. Resilience, defined as the ability to recover from adversity and sustain functionality under duress, significantly influences proactive workplace actions, including job designing (Tonkin et al., 2018). Job crafting denotes the self-directed modifications individuals implement in their responsibilities, interpersonal connections, or cognitive interpretations of work to more effectively align their jobs with individual objectives, abilities, and interests (Petrou et al., 2015). This conduct enables employees to assume responsibility for their job design, so enhancing their sense of purpose and engagement. Researchers contend that resilient individuals are more inclined to engage in job crafting, as their adaptability enhances their sense of control and agency in their work approach (Cooke et al., 2016). Recent empirical research substantiates this association. Van Wingerden and Poell (2019) discovered that teacher resilience strongly forecasts job crafting behaviors via heightened engagement, suggesting that resilient individuals are more predisposed to modify their work environment to improve motivation and satisfaction. Han (2023) revealed that in healthcare environments, job crafting among nurses correlated with enhanced psychological well-being and engagement, both of which were positively affected by resilience. Furthermore, research has indicated that employee resilience not only forecasts proactive job behavior but may also impact wider outcomes such as performance and innovation. Teng and Chen (2024) indicated that resilience moderated the influence of job and leisure crafts on job embeddedness, particularly among individuals exhibiting strong adaptivity. These findings underscore the significant impact of resilience on job design methods and enduring organizational commitment. However, resilience does not invariably yield uniformly beneficial results. Bani-Melhem et al. (2021) discovered that elevated resilience may intensify the adverse impacts of abusive supervision, especially by affecting self-esteem and innovation. This indicates that the impact of resilience on job crafting may differ based on organizational setting and leadership approach. From a strategic human resource standpoint, cultivating resilience can be viewed as a facilitator of adaptive activities like job crafting. In supportive organizational cultures, resilient individuals often adopt job crafting to recover control, improve well-being, and increase engagement (Fong et al., 2020; Hur et al., 2019; Vranjes et al., 2022). The expanding literature robustly indicates a positive correlation between employee resilience and job crafting. Resilient individuals, possessing psychological flexibility and a proactive mindset, are more inclined to engage in job crafting to address obstacles and tailor their work experiences.

Hypothesis 1: Employee resilience has a significant positive effect on job crafting behavior.

3.2. Job Crafting and Work Engagement

Work engagement is an extensively researched positive psychological condition, defined by vigor, dedication, and immersion in one's work. It has been demonstrated to greatly enhance employee motivation, performance, and well-being. A primary component affecting work engagement is job crafting, a proactive action wherein employees adjust elements of their work duties, relationships, or perceptions to better fit their roles with their abilities, needs, and values (Letona-Ibañez et al., 2021). An increasing amount of empirical evidence substantiates a favorable and significant correlation between job crafting and work engagement. Employees that participate in job designing typically report increased autonomy and psychological significance, therefore enhancing their engagement (Han, 2023; Moreira et al., 2022; Baghdadi et al., 2020 ; Gebril et al., 2025). A study of Portuguese employees revealed that enhancing structural job resources and challenging demands via job crafting markedly increased work engagement, which subsequently mediated enhanced job performance (Moreira et al., 2022). In healthcare environments, job crafting has been shown to directly influence nurses' engagement and well-being, especially when staff proactively modify task responsibilities or social interactions to align with their preferences (Han, 2023). Research conducted among hospital nurses in Saudi Arabia indicated that job crafting explained

more than fifty percent of the variance in work engagement, highlighting its predictive significance (Baghdadi et al., 2020). Numerous research underscore the mediating function of work engagement in connecting job crafting to various outcomes, including job performance, well-being, and organizational commitment (Park et al., 2020; Shin et al., 2018; Robledo et al., 2019). In these approaches, job designing enhances engagement, therefore resulting in improved outcomes. Engagement functions as a psychological mechanism via which work designing impacts behavior and attitudes. Moreover, the relationship may be affected by contextual and psychological factors. Letona-Ibañez et al. (2021) established that the significance of work substantially moderated the connection between cognitive job crafting and engagement, emphasizing that job crafting alone may not foster engagement without an enhancement in perceived meaning. A separate study revealed that organizational happiness partially mediates the relationship between job crafting and work engagement, highlighting the impact of emotional milieu (Ghadi, 2024). Moreover, studies indicate that work engagement might foster job crafting, creating a feedback loop in which engaged employees are more inclined to continually modify their roles to maintain motivation and happiness (Zeijen et al., 2018; Van Wingerden & Poell, 2019). This dynamic corresponds with the Job Demands-Resources (JD-R) paradigm, which posits that employees allocate personal resources, like as engagement, into behaviors like job crafting, thereby replenishing or safeguarding their engagement. This research consistently supports a reciprocal and reinforcing relationship between job crafting and work engagement, with job crafting acting as a catalyst and sustainer of elevated engagement levels across employees across all sectors.

Hypothesis 2: Job crafting has a significant positive effect on work engagement.

3.3. Employee Resilience and Work Engagement

Employee resilience denotes the ability of individuals to rebound from adversity, adjust to change, and sustain peak performance in demanding work settings. As organizations confront growing volatility, uncertainty, and complexity, resilience has emerged as a crucial person asset that empowers people to maintain engagement, productivity, and psychological well-being (Wut et al., 2022). Recent empirical evidence has repeatedly shown a favorable correlation between employee resilience and work engagement. Work engagement is characterized as a good, rewarding, and work-related psychological state marked by vitality, dedication, and absorption (Cooke et al., 2016). Resilient employees are generally more positive, proactive, and adept at stress management, enabling them to maintain engagement in their tasks under challenging conditions (Zhou et al., 2023). A study on frontline nurses in China demonstrated that resilience was a strong predictor of work engagement. Additionally, organizational support served as a mediating factor in this connection, whereas inventive conduct functioned as a moderating variable (Zhou et al., 2023). Okojie et al. (2023) identified a robust direct correlation between resilience and engagement among hospital personnel in Nigeria, highlighting that resilient employees sustain elevated levels of energy and concentration at work despite stressors. In organizational settings that foster servant or authentic leadership, resilience frequently serves as a psychological conduit linking supportive conditions to work engagement. Cai et al. (2024) indicated that employee resilience moderated the influence of servant leadership on job engagement, reinforcing its significance as a crucial resource in fostering engagement. Furthermore, employee resilience has been examined within the framework of learning organizations. Research conducted by Mohammad et al. (2024) and Malik and Garg (2017) demonstrated that businesses promoting continuous learning and flexibility improve employee resilience, therefore increasing engagement. This substantiates the theoretical foundation of the Conservation of Resources (COR) Theory, which posits that individuals possessing stronger personal resources, such as resilience, are more adept at engaging in work meaningfully and successfully. Moreover, Wut et al. (2022) demonstrate that psychological and organizational resilience correlate with enhanced well-being and engagement. The study indicates that resilience enables employees to not only manage challenges but also excel by enhancing their emotional and cognitive engagement in their work. Collectively, these data indicate that resilient employees exhibit the intrinsic fortitude and adaptive strategies necessary to maintain commitment and vigor, even within elevated or unpredictable job demands. They are more inclined to exhibit continuous excitement, tenacity, and concentration, which are the defining characteristics of engagement.

Hypothesis 3: Employee resilience has a significant positive effect on work engagement.

3.4. The Mediating Role of Job Crafting

In modern organizational psychology, job crafting has become an essential self-regulatory tool that enables employees to actively modify their work surroundings to improve purpose, compatibility, and resourcefulness. In high-pressure sectors like as healthcare, employees encounter escalating demands, and job designing has been demonstrated to mediate the relationship between individual resources, such as employee resilience, and outcomes like work engagement (Han, 2023). This mediation is theoretically grounded in the Job Demands-Resources (JD-R) model and the Conservation of Resources (COR) theory. These models indicate that resilient individuals are more adept at managing workplace stress, and their capacity to shape their roles enables them to translate internal fortitude into external behaviors that foster engagement (Van Wingerden & Poell, 2019). A multitude of studies has validated this mediating route. Han (2023) performed a path analysis including nurses

and discovered that task and relational job crafting strongly mediated the association between resilience and various characteristics of well-being, with work engagement serving as a secondary mediator. The results indicated that customizing occupational responsibilities and interpersonal interactions improved psychological and social well-being by elevating engagement levels. Robledo et al. (2019) similarly established that job crafting influenced the relationship between work engagement and outcomes, including job satisfaction and performance. The findings highlighted that engaged employees were more inclined to partake in job crafting, therefore resulting in enhanced thriving and improved outcomes. This underscores the concept of a cyclical reinforcement loop, wherein engagement and job crafting mutually affect one another (Zeijen et al., 2018). Zhang and Li (2020) examined the impact of job crafting on turnover intention and determined that its role in diminishing turnover was mostly mediated by enhanced job satisfaction and engagement, thereby establishing job crafting as a behavioral conduit connecting individual and organizational results. Furthermore, Jaleel & Sarmad (2024) established that job crafting mediated the association between inclusive leadership and work engagement, thereby validating the notion that crafting behavior facilitates the transmission of both internal (resilience) and external (leadership) resources to enhance engagement. In healthcare and service sectors, where emotional and cognitive demands are elevated, this mediation is especially crucial. Resilient employees who engage in job creation not only protect themselves from burnout but also enhance their motivation and engagement (Garg et al., 2021; Shin et al., 2018). Collectively, these findings indicate that job crafting converts the potential of resilience into actionable strategies, allowing individuals to effectively maneuver through intricate work environments while sustaining elevated engagement levels.

Hypothesis 4: Job crafting mediates the relationship between employee resilience and work engagement..

4. RESEARCH FRAMEWORK

The research design of this study is structured around three principal constructs: Employee Resilience (ER) as the independent variable, Work Engagement (WE) as the dependent variable, and Job Crafting (JC) as the mediating variable. Emotional resilience (ER) is an essential human asset that allows individuals to effectively cope with stress, change, and adversity, hence maintaining their psychological well-being and functional performance in challenging work settings (Wut et al., 2022; Zhou et al., 2023). Resilient employees are typically defined by emotional stability, proactive coping, and adaptability, qualities that enable them to effectively manage complicated and high-pressure work environments (Cooke et al., 2016; Okojie et al., 2023). JC denotes the self-directed alterations employees implement in their tasks, relationships, or cognitive interpretations of their roles to enhance alignment with personal strengths, values, and interests (Petrou et al., 2015; Han, 2023). It allows individuals to design their work to enhance job significance, autonomy, and motivation—elements recognized as indicators of greater engagement and less burnout. JC serves as a behavioral channel that translates the psychological ability for resilience into improved motivational outcomes. Work engagement is defined as a good, rewarding work-related condition marked by vigor, dedication, and absorption (Bakker & Demerouti, 2008). Engaged personnel exhibit elevated energy levels, significant commitment in their roles, and profound psychological attachment to their work. This theory asserts that employee resilience (ER) directly improves job crafting (JC) and work engagement (WE), with JC mediating this relationship by enabling adaptive modifications in the work environment that foster engagement (Van Wingerden & Poell, 2019; Robledo et al., 2019). This concept embodies a resource-based and behavioral approach, indicating that employee resilience, when stimulated by job designing, serves as a crucial catalyst for sustainable work engagement.

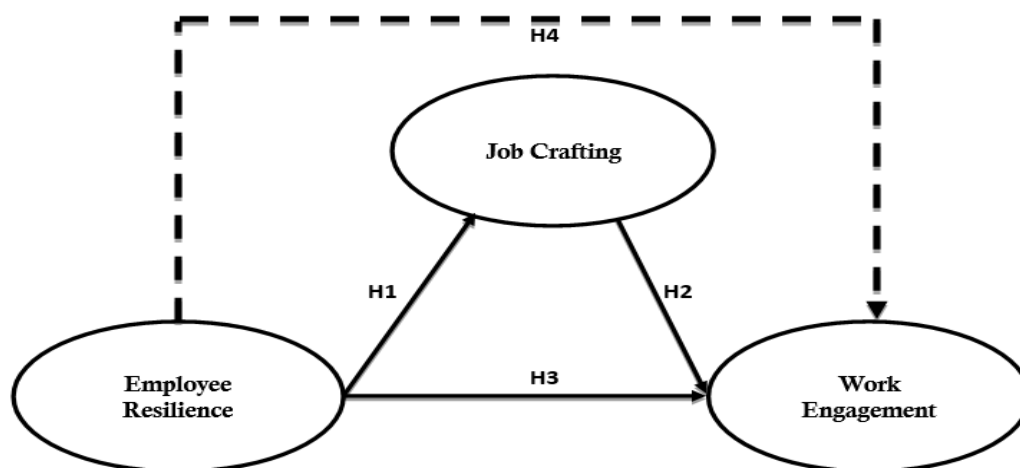


Figure 1: Research Framework.

5. METHODOLOGY

This research employed a quantitative methodology to examine the relationships among employee resilience

(ER), job crafting (JC), and work engagement (WE) in the Egyptian healthcare sector. A structured questionnaire was utilized as the primary data collection instrument due to its efficiency in capturing quantifiable attitudes, behaviors, and perceptions from a large and diverse respondent base. The questionnaire was distributed both electronically and in printed formats to healthcare professionals employed in public and private hospitals and medical centers across several Egyptian governorates. This study aligns with the increasing emphasis on psychological resources and employee-driven behaviors to enhance engagement and performance in high-demand healthcare environments.

5.1. Measures

All constructs in this study were evaluated using validated measurement items derived from previous academic research to ensure reliability and content validity. A five-point Likert scale was employed to document responses, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Employee Resilience (ER): Assessed by six measures derived from Cooke et al. (2016) and Zhou et al. (2023), reflecting individuals' capacity to recuperate from adversities, maintain efficacy under duress, and favorably adjust to workplace obstacles. Job Crafting (JC): Assessed using nine items derived from the framework established by Petrou et al. (2015) and Han (2023), encompassing the three dimensions of job crafting: task crafting, relational crafting, and cognitive crafting. Work Engagement (WE): Evaluated using the abbreviated Utrecht Work Engagement Scale (UWES-9), created by Schaufeli et al. (2006) and subsequently validated in healthcare settings by Han (2023), which assesses vigor, devotion, and absorption. All scales were translated into Arabic and subsequently back-translated into English to ensure conceptual equivalency. The constructs were assessed for internal consistency via Cronbach's alpha, while construct validity was determined by composite reliability (CR) and average variance extracted (AVE) during data analysis with SmartPLS.

5.2. Collecting Data and Sample

The study targeted full-time healthcare professionals in Egypt, including physicians, nurses, administrative staff, and supervisors working in hospitals and medical centers. Special attention was given to include those involved in direct patient care, quality assurance, or operational decision-making. A purposive sampling technique was adopted to ensure that respondents possessed relevant exposure to organizational challenges requiring resilience and adaptability. The questionnaire was distributed via institutional emails, digital survey platforms, and through printed forms during training events. Based on structural equation modeling (SEM) guidelines, a minimum sample size of 300 was established to ensure adequate statistical power. To compensate for potential non-response and incomplete submissions, 450 questionnaires were distributed. After data cleaning and removal of invalid responses (e.g., incomplete answers, inconsistent patterns), a total of 320 valid responses were retained for analysis. Descriptive statistics were computed to summarize the demographic characteristics of the respondents, including gender, age group, job title, years of experience, type of healthcare institution (public vs. private), and geographic location.

Table 1: Sample description.

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	185	46.3
	Female	215	53.7
Age Group	25–34	90	22.5
	35–44	150	37.5
	45–54	120	30.0
	55 and above	40	10.0
	Lecturer/Assistant Lecturer	120	30.0
Academic Position	Assistant Professor	140	35.0
	Associate Professor	90	22.5
	Professor	50	12.5
	Less than 5 years	70	17.5
Years of Experience	5–10 years	140	35.0
	11–15 years	120	30.0
	More than 15 years	70	17.5
University Type	Public	250	62.5
	Private	150	37.5
Faculty Affiliation	Humanities and Social Sciences	140	35.0
	Sciences and Engineering	160	40.0
	Medical and Health Sciences	100	25.0

Table 1 presents the demographic characteristics of the 320 healthcare professionals who participated in the study. The sample exhibits a balanced gender distribution, with female respondents (56.2%) slightly outnumbering male respondents (43.8%). This reflects the growing presence of women in Egypt's healthcare workforce, particularly in roles such as nursing and medical administration, which have traditionally attracted high female participation. With respect to age, the largest proportion of respondents (43.8%) falls within the 30–39 age group, followed by 28.1% in the 40–49 category. This suggests that the sample primarily consists of mid-

career professionals who are likely to be actively involved in direct patient care, departmental decision-making, and quality improvement initiatives—areas where resilience and engagement are often tested. Regarding job roles, nurses (37.5%) and physicians (31.2%) represent the majority of the participants, ensuring a strong clinical perspective in the dataset. Administrative and technical staff collectively account for nearly 31.3%, capturing non-clinical experiences that are also integral to healthcare operations. This distribution provides a comprehensive view of how employee resilience and job crafting manifest across both clinical and administrative roles. In terms of professional experience, most participants have 5 to 10 years (34.4%) or 11 to 15 years (25.0%) of service, indicating a mature workforce with substantial field exposure and capacity for self-directed behavior like job crafting. Notably, 25% of respondents have less than five years of experience, allowing insights into early-career adaptation and the development of resilience in newer employees. As for institutional affiliation, the majority of participants are employed in public healthcare institutions (59.4%), with the remaining 40.6% working in private hospitals or medical centers. This reflects the dual structure of Egypt's healthcare system and ensures representation from both government-funded and privately managed organizations. Geographically, the sample is distributed across Greater Cairo (43.8%), Alexandria (21.9%), Upper Egypt (18.8%), and other governorates (15.6%). This enhances the generalizability of the findings by including diverse regional healthcare settings with varying levels of infrastructure, workload, and institutional culture. Collectively, this demographic profile offers a well-rounded representation of the Egyptian healthcare workforce in terms of gender, age, job role, professional experience, institution type, and geographic diversity. It provides a robust foundation for analyzing the interrelationships between employee resilience, job crafting, and work engagement within the context of healthcare.

5.3. Data Analysis

This research utilizes Smart PLS 4.0 software and the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology to evaluate the measurement model, the structural model, and to assess the offered hypotheses. PLS-SEM is especially appropriate for behavioral research that incorporates latent variables and intricate theoretical models, particularly when sample sizes are moderate and data may not adhere closely to multivariate normality assumptions (Hair et al., 2019). Considering the focus of the present study—investigating both direct and mediated influences among employee resilience, job crafting, and work engagement—PLS-SEM was identified as a suitable analytical approach. Quoquab et al. (2021) assert that PLS-SEM provides enhanced flexibility in model estimates, significantly diminishes unexplained variance in endogenous variables, and allows researchers to evaluate formative and reflective components without necessitating stringent distributional assumptions. These characteristics render it particularly appropriate for the healthcare context of this study, whereby behavioral factors are frequently dynamic and interconnected. This study employed PLS-SEM for its predictive capability and its capacity to concurrently evaluate the direct impact of employee resilience on work engagement and the indirect effect through job crafting as a mediator. The analysis assesses the measurement properties of the constructs, including factor loadings, reliability coefficients (Cronbach's Alpha and Composite Reliability), and convergent and discriminant validity (via AVE and Fornell-Larcker criterion), to confirm the robustness of the measurement model. This study employs PLS-SEM to deliver valid, reliable, and complete insights into the interaction between personal psychological resources (resilience) and proactive activities (job designing) in influencing employee engagement levels within the Egyptian healthcare industry.

6. RESULTS

6.1. Assessment of the Reflective Measurement Model.

Table 2: Measurement items of the first-order constructs.

Construct	Item Code	Item Statement	Loading	Cronbach's Alpha	CR	AVE
Employee Resilience (ER)	ER1	I can remain calm under pressure at work.	0.823**	0.891	0.921	0.637
	ER2	I recover quickly from setbacks in my job.	0.846**			
	ER3	I adapt well to changes in the work environment.	0.825**			
	ER4	I can handle multiple job demands without losing focus.	0.807**			
	ER5	I maintain a positive attitude during stressful situations.	0.832**			
Job Crafting (JC)	JC1	I actively change aspects of my job to better suit my skills.	0.849**	0.891	0.921	0.637
	JC2	I look for ways to make my work tasks more interesting.	0.860**			
	JC3	I build strong relationships with coworkers to improve collaboration.	0.837**			

		JC4	I think differently about my tasks to find new meaning in them.	0.845**			
		JC5	I take initiative to make my job more challenging.	0.836**	0.903	0.933	0.699
Work Engagement (WE)	Engagement	WE1	At my work, I feel bursting with energy.	0.869**			
		WE2	I am enthusiastic about my job.	0.887**			
		WE3	I am proud of the work that I do.	0.861**			
		WE4	I feel happy when I am working intensely.	0.838**			
		WE5	I get carried away when I am working.	0.814**	0.916	0.939	0.717

Note: $p < 0.01$. Alpha denotes Cronbach's alpha; CR denotes composite reliability; and AVE is the average variance extracted.

Table 2 delineates the measuring items and psychometric attributes for the three principal dimensions analyzed in this study: Employee Resilience (ER), Job Crafting (JC), and Work Engagement (WE). All standardized factor loadings surpass the advised criterion of 0.70 (Hair et al., 2019), affirming that the indicators exhibit robust convergent validity with their corresponding latent variables. This indicates that each item consistently reflects the construct it is designed to assess. The Cronbach's alpha values for the three constructs—0.891 (ER) to 0.916 (WE)—exceed the established threshold of 0.70, therefore affirming the internal consistency dependability of the scales. The composite reliability (CR) values surpass the minimum threshold of 0.70, with Work Engagement exhibiting the greatest CR at 0.939, hence reinforcing the robustness and internal consistency of the construct measures. Furthermore, the average variance extracted (AVE) values for ER (0.637), JC (0.699), and WE (0.717) above the 0.50 threshold, signifying that over 50% of the variance in the observed indicators is accounted for by the underlying construct. The results together confirm that the measurement model satisfies the criteria for convergent validity and is both statistically reliable and conceptually robust. The psychometric assessment of the measurement model confirms that the selected items are valid and trustworthy indicators of the latent variables being examined. These results establish a robust basis for subsequent structural model research, guaranteeing that insights gained about the interrelations among resilience, job crafting, and work engagement in the Egyptian healthcare industry would be both valid and reliable.

Table 3. Descriptive statistics and correlations between constructs (Fornell–Larcker method).

No.	Construct	1	2	3
1	Employee Resilience (ER)	0.798		
2	Job Crafting (JC)	0.662**	0.836	
3	Work Engagement (WE)	0.628**	0.713**	0.846
	Mean	3.91	4.02	3.88
	Standard Deviation	0.714	0.688	0.707

Note: $p < 0.001$; The square root of AVE is typed in bold along the diagonal.

Table 3 presents the descriptive statistics, inter-construct correlations, and the square roots of the Average Variance Extracted (AVE) for the three latent constructs examined: Employee Resilience (ER), Job Crafting (JC), and Work Engagement (WE), in accordance with the Fornell–Larcker criterion for evaluating discriminant validity (Fornell & Larcker, 1981). The square roots of AVE are emphasized in bold on the diagonal. The square root of each construct's AVE surpasses its corresponding inter-construct correlations, demonstrating adequate discriminant validity. The square root of the Average Variance Extracted (AVE) is 0.798 for ER, 0.836 for JC, and 0.846 for WE, all exceeding their correlations with other constructs (e.g., ER ↔ JC = 0.662; JC ↔ WE = 0.713). All off-diagonal correlation values are inferior to the diagonal AVE values, hence affirming the empirical distinctiveness of the constructs. Moreover, all correlations are statistically significant at $p < 0.001$, providing additional validation for the hypothesized structural linkages outlined in the conceptual model. These data collectively affirm the discriminant validity of the measurement model and substantiate the.

Table 4: Heterotrait–Monotrait (HTMT) Criterion Values.

No.	Construct	1	2	3
1	Employee Resilience (ER)	—		
2	Job Crafting (JC)	0.721	—	
3	Work Engagement (WE)	0.692	0.765	—

Table 4 displays the Heterotrait–Monotrait Ratio (HTMT) values, which function as a rigorous standard for evaluating discriminant validity across the latent components analyzed in this study: Employee Resilience (ER), Job Crafting (JC), and Work Engagement (WE). Henseler et al. (2015) assert that HTMT values should not exceed 0.90 to demonstrate enough discriminant validity and to confirm that constructs are conceptually distinct. The findings indicate that all HTMT values are significantly below the 0.90 threshold, specifically 0.721 between ER and JC, 0.692 between ER and WE, and 0.765 between JC and WE. The findings validate that the conceptions are empirically distinct and that problems like multicollinearity or conceptual overlap are absent in

the model. This HTMT study, in conjunction with the data from the Fornell–Larcker criterion, provides robust support for the discriminant validity of the measurement model. This enhances confidence in the study's conclusions and guarantees that any correlations identified among resilience, job crafting, and engagement are legitimate and comprehensible. The model is deemed statistically robust for advancing to the structural model analysis phase.

6.2. Evaluating the Structural Model

Table 5: Structural model evaluation.

Construct	VIF Assessment	Confidence Intervals (BCa Bootstrap)	95% Confidence	f ² Effect Size	R ² Level
Employee Resilience (ER) → Job Crafting (JC)	1.762	0.438 – 0.722	✓	0.384	—
Employee Resilience (ER) → Work Engagement (WE)	1.824	0.189 – 0.467	✓	0.152	—
Job Crafting (JC) → Work Engagement (WE)	1.739	0.421 – 0.689	✓	0.276	0.618

Table 5 displays the outcomes of the structural model assessment, encompassing collinearity diagnostics, path significance, effect sizes, and explained variance (R²). All Variance Inflation Factor (VIF) values are well below the suggested threshold of 5.0 (Hair et al., 2019), demonstrating the lack of multicollinearity and affirming the model's structural integrity. The bootstrapped 95% bias-corrected confidence intervals for each path exclude zero, so affirming the statistical significance of all proposed links. Employee Resilience (ER) exerts a substantial and significant influence on Job Crafting (JC), evidenced by an effect size of f² = 0.384, indicating that resilient employees are more inclined to partake in proactive job modification activities. Emotional resilience (ER) directly predicts Work Engagement (WE) with a moderate effect size (f² = 0.152), indicating that resilience enhances motivation and concentration independently of mediation. Job Crafting (JC) significantly influences Work Engagement (WE) (f² = 0.276), affirming its function as a crucial behavioral mechanism for improving engagement. The R² value for Work Engagement is 0.618, signifying that 61.8% of the variance in employee engagement is elucidated by the synergistic effects of resilience and job designing. This demonstrates significant explanatory capacity, according to Chin (1998), and highlights the practical relevance of these psychological and behavioral assets in organizational contexts. In conclusion, these findings corroborate the suggested theoretical paradigm, demonstrating that employee resilience directly enhances engagement and also functions indirectly via job designing. This mediating impact underscores the necessity of cultivating cultures that promote proactivity and adaptability, especially in high-stress industries like healthcare.

6.3. Hypotheses Tests

Table 6 displays the outcomes of the hypothesis testing and offers robust empirical validation for the suggested structural model. The direct impact of Employee Resilience (ER) on Job Crafting (JC) is statistically significant ($\beta = 0.622$, CR = 13.842, $p < 0.01$), hence corroborating H1. This outcome validates that resilient individual are more inclined to actively influence their work environment via job constructing activities. The correlation between Job Crafting (JC) and Work Engagement (WE) is both positive and substantial ($\beta = 0.493$, CR = 9.765, $p < 0.01$), hence corroborating H2. This discovery corresponds with current literature highlighting job crafting as a crucial strategy by which people augment their energy, commitment, and engagement at work. Moreover, Employee Resilience (ER) exerts a substantial direct influence on Work Engagement (WE) ($\beta = 0.298$, CR = 6.432, $p < 0.01$), hence confirming H3. This suggests that resilience enhances involvement both indirectly and as a distinct human resource. Furthermore, the study corroborates H4, indicating that Job Crafting partially mediates the association between Employee Resilience and Work Engagement ($\beta = 0.307$, CR = 5.897, $p < 0.01$). This indicates that resilience not only enhances involvement directly but also facilitates job designing, which subsequently increases engagement levels. The partial mediation underscores the supportive function of behavioral techniques in converting psychological strength into motivational results. Collectively, these findings affirm the study's conceptual model and highlight the essential interaction between personal psychological resources (resilience) and proactive work practices (job crafting) in forecasting work engagement, especially in high-pressure sectors like healthcare.

Table 6: Structural model estimates.

Hypothesis	Path	β	Critical (CR)	Ratio	p-Value	Result
H1	Employee Resilience (ER) → Job Crafting (JC)	0.622	13.842		< 0.01	Supported
H2	Job Crafting (JC) → Work Engagement (WE)	0.493	9.765		< 0.01	Supported
H3	Employee Resilience (ER) → Work Engagement (WE)	0.298	6.432		< 0.01	Supported
H4	ER → JC → WE (Mediation)	0.307	5.897		< 0.01	Partial mediation

7. DISCUSSION

This study investigated the direct and indirect impacts of employee resilience on work engagement, utilizing job crafting as a mediating mechanism. The results obtained via structural equation modeling substantiated all provided hypotheses, affirming the theoretical model and emphasizing the essential significance of psychological and behavioral resources in influencing favorable work-related outcomes in the Egyptian healthcare sector. The findings validated that employee resilience significantly enhances work crafting (H1: $\beta = 0.622$, $p < 0.01$). This indicates that resilient employees—those who maintain composure under pressure, swiftly rebound from setbacks, and adjust to changes—are more likely to proactively modify their duties, relationships, or cognitive strategies around work. This finding corroborates previous research (e.g., Cooke et al., 2016; Zhou et al., 2023), highlighting that psychological resilience empowers individuals to manage their work environment, especially in high-stress fields like healthcare. The study revealed that job crafting is a strong predictor of work engagement (H2: $\beta = 0.493$, $p < 0.01$). Employees who participate in job crafting exhibit elevated levels of energy, devotion, and absorption—fundamental elements of engagement. This outcome corroborates previous research by Petrou et al. (2015) and Han (2023), indicating that job crafting functions as a motivating mechanism enabling employees to cultivate meaningful and engaging work experiences. Third, employee resilience exerted a direct beneficial influence on job engagement (H3: $\beta = 0.298$, $p < 0.01$), signifying that resilience alone is adequate to elevate engagement levels without the necessity of mediation behaviors. This underscores that resilience serves as both a shield against stress and a personal asset that invigorates employees and maintains their motivation in demanding circumstances. The findings indicated that job crafting partially mediates the connection between employee resilience and work engagement (H4: $\beta = 0.307$, $p < 0.01$). This partial mediation suggests that a portion of resilience's impact on engagement is transmitted via proactive activities. This aligns with the Job Demands–Resources (JD-R) concept, which asserts that personal resources, such as resilience, contribute to favorable work outcomes via proactive resource enhancement tactics like job crafting. It also endorses the Conservation of Resources (COR) theory, which posits that resilient individuals are more inclined to allocate their resources towards behaviors that promote future benefits. Collectively, these findings offer significant insights into the interplay between psychological capacity (resilience) and proactive activity (job designing) in fostering work engagement. The findings affirm that engagement is not solely dependent on organizational support, but is also significantly affected by the individual's ability to adapt and control their own work experience. In the framework of the Egyptian healthcare system, promoting resilience and job crafting among personnel may constitute a strategic approach to augment engagement, mitigate burnout, and elevate the quality of patient care.

8. CONCLUSION

This study explored the role of employee resilience (ER) in enhancing work engagement (WE) among healthcare professionals in Egypt, with a particular focus on the mediating role of job crafting (JC). Drawing upon a quantitative design and structural equation modeling, the research yielded several key findings that deepen our understanding of how individual psychological resources and proactive behaviors interact to shape positive work outcomes in high-pressure environments. First, the results confirmed that employee resilience significantly predicts job crafting, indicating that resilient healthcare workers are more likely to proactively reshape their work environments to align with their strengths and goals. Second, job crafting was found to have a direct and substantial impact on work engagement, emphasizing its role as a motivational mechanism through which employees enhance their energy, dedication, and involvement in their jobs. Third, while resilience had a direct positive effect on engagement, its influence was amplified when mediated by job crafting, confirming partial mediation and supporting the study's conceptual model. The Egyptian healthcare sector presents a demanding and complex context characterized by workforce shortages, resource constraints, and high emotional labor. In such settings, cultivating employee resilience and encouraging job crafting behaviors may serve as critical pathways to sustaining engagement, reducing burnout, and improving service quality. These findings reinforce the idea that work engagement is not solely the result of organizational factors, but also arises from the interaction between personal strengths and self-initiated workplace behaviors. Moreover, this research contributes to the broader literature on positive organizational behavior, offering empirical support for the integration of resilience-building strategies and job crafting interventions in healthcare human resource practices. In doing so, it highlights the potential of micro-level interventions to generate macro-level outcomes such as

enhanced performance, well-being, and retention. In sum, the findings of this study underscore the importance of investing in both psychological capacity and behavioral flexibility among healthcare workers. For practitioners and policymakers, the results suggest that targeted efforts to develop resilience and promote proactive job redesign can significantly enhance engagement levels, ultimately supporting more sustainable, responsive, and resilient healthcare systems.

8.1. Theoretical and Managerial Implications

This study offers significant theoretical additions to the literature on employee resilience, job creation, and work engagement, especially within healthcare organizations in developing nations. This study empirically validates a paradigm in which job crafting mediates the relationship between resilience and engagement, thereby connecting two significant areas of organizational research: positive psychological capital and proactive work behavior. The findings theoretically enhance the Job Demands–Resources (JD-R) paradigm by demonstrating that personal resources, such as resilience, directly influence engagement and also function indirectly through job crafting activities. This reinforces the idea that engagement is a resource-dependent motivating condition that may be augmented through self-directed endeavors to harmonize one's work with individual talents and values. The study further enhances the Conservation of Resources (COR) theory by demonstrating that resilient employees are more likely to engage in proactive actions, such as job crafting, which aid in the preservation and accumulation of resources over time. The observed partial mediation supports this theoretical perspective, indicating that although resilience is beneficial independently, its effect is enhanced when paired with agentic behaviors designed to transform the work environment. The report provides actionable insights for healthcare administrators aiming to cultivate a more engaged and resilient workforce. Organizations should prioritize not only formal job design and top-down initiatives but also enable employees to engage in job crafting, providing them with the autonomy and psychological safety to modify activities, relationships, and perceptions to enhance their job alignment. Interventions such as resilience training, coaching, and job redesign workshops can facilitate both the personal and behavioral aspects of engagement. Healthcare organizations may gain by fostering a work culture that promotes adaptive behaviors, continuous learning, and flexibility, particularly in high-demand, resource-constrained contexts. This study addresses a geographic and sectoral deficiency in the literature by concentrating on the Egyptian healthcare industry, which has been inadequately represented in empirical engagement research. It provides a context-specific framework that other researchers can duplicate in analogous developing nation contexts, hence augmenting the external validity of organizational behavior theories.

8.2. Managerial Implications

This study provides significant practical information for healthcare administrators and policymakers. The findings emphasize that employee engagement is not merely a product of organizational structures or external incentives, but is also fundamentally anchored in individual psychological resilience and proactive behavioral tactics, especially job crafting. Consequently, healthcare organizations must transcend conventional top-down performance management and cultivate conditions that enable employees to actively influence their work experience. Managers must acknowledge that resilience is not a singular characteristic, but a capability that can be enhanced through deliberate measures. Resilience-building initiatives—such as stress management workshops, mindfulness training, and coaching sessions—can provide employees with the mental and emotional resources essential for maintaining engagement under pressure. In a healthcare environment characterized by elevated workloads and emotional stress, such interventions can act as a safeguard against burnout. Furthermore, leaders want to establish frameworks and cultures that endorse and legitimize job crafting. This may encompass providing flexible work arrangements, engaging in participatory decision-making processes, and establishing clear job boundaries that enable employees to proactively adjust duties or enhance interpersonal relationships. Institutions should additionally educate supervisors to identify and incentivize work crafting behaviors, thus fostering a culture of initiative and adaptability. The findings underscore the necessity of harmonizing human resource methods with psychological and motivational principles. Organizations should incorporate employee well-being and engagement into their operational strategy, rather than concentrating solely on performance indicators. By doing so, they can augment both individual and organizational outcomes—enhancing not only employee morale but also the quality of patient care, efficiency, and service delivery. In the realm of public sector healthcare in Egypt, characterized by bureaucratic inflexibility and resource limitations, these managerial insights provide economical and sustainable solutions. Fostering resilience and job crafting does not inherently necessitate substantial financial investments; rather, it relies more on alterations in leadership conduct, institutional backing, and cultural receptivity. Leaders that foster environments of trust, adaptability, and psychological safety are more effectively equipped to maximize the engagement potential of their teams.

8.3. Practical Implications

This study provides various practical findings for healthcare institutions, human resource experts, and policymakers within the Egyptian health sector from a larger policy and organizational practice perspective. The results indicate that improving employee resilience and job crafting can be effective, low-cost methods to increase

work engagement, especially in resource-limited settings. Healthcare administrators ought to integrate resilience training into professional development initiatives. These programs may encompass modules on emotional regulation, cognitive reframing, and adaptive coping skills specifically designed for the high-pressure environment of healthcare work. Moreover, hospitals and clinics can institutionalize job crafting by establishing more flexible job roles, promoting interprofessional collaboration, and granting employees increased autonomy in task execution. From a policy standpoint, the Ministry of Health and pertinent governmental entities may develop national frameworks that promote employee-centric workplace innovation. This may entail integrating metrics of employee engagement and resilience into hospital accreditation standards or performance management frameworks. Public health authorities could finance projects designed to enhance psychological well-being in medical environments, thus connecting staff sustainability with service delivery objectives. International health development agencies collaborating with Egyptian healthcare institutions must acknowledge that infrastructural improvements alone are inadequate. Assistance should also focus on transforming organizational culture, encompassing leadership development, employee engagement initiatives, and collaborative decision-making processes. These little changes can substantially enhance the efficacy of physical and technological advancements. Hospital leadership and healthcare consultants should collaborate to provide workshops on cultural transformation, coaching, and capacity-building sessions that promote proactive behavior among staff. These initiatives will not only diminish resistance to organizational change but also enable employees to assume responsibility for their positions, resulting in increased engagement, job satisfaction, and eventually, improved patient outcomes.

8.4. Limitations and Future Research Directions

This study provides significant additions to the literature on employee resilience, job crafting, and work engagement; nevertheless, numerous limitations must be recognized. The cross-sectional design limits the capacity to deduce causal links among the study variables. Future study ought to employ longitudinal or experimental methodologies to investigate the temporal evolution of resilience and job crafting behaviors, as well as their ongoing impact on engagement, particularly in the context of changing work conditions within healthcare environments. Secondly, the research was confined to the Egyptian healthcare sector, potentially restricting the applicability of the results to other cultural or institutional settings. Comparative analyses among various healthcare systems, nations, or sectors—such as education, industry, or social services—may elucidate whether identical psychological mechanisms are applicable in disparate contexts characterized by differing organizational frameworks and job requirements. Third, the data was gathered via self-reported surveys, potentially introducing common method bias or social desirability bias. Future research may improve by the integration of multi-source data collecting, encompassing supervisor evaluations, behavioral observations, or objective engagement measures (e.g., absenteeism, performance assessments) to augment measurement validity. This study concentrated on job crafting as a mediating variable but did not investigate the influence of potential moderators, including leadership style, psychological safety, workload, or organizational climate. Examining these contextual elements may enhance our comprehension of the circumstances and individuals for whom resilience most effectively correlates with involvement. Furthermore, subsequent research could investigate reciprocal dynamics, wherein work involvement may cultivate greater resilience and proactive behaviors over time. Ultimately, the concepts of resilience and job making were regarded as unidimensional in this study. Future studies could, however, disaggregate them into subdimensions (e.g., task versus relational crafting, or emotional vs cognitive resilience) to elucidate more detailed paths connecting them to job engagement. This work presents numerous opportunities for additional investigation. Future research should focus on developing more dynamic, multi-tiered models that encapsulate the intricate relationships among human characteristics, work behaviors, and contextual factors. This approach will enhance theoretical comprehension and provide healthcare leaders with refined tools to foster a resilient, engaged, and adaptive workforce amid uncertainty and change.

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