

PSYCHOLOGICAL CAPITAL AS A MEDIATING MECHANISM BETWEEN ORGANIZATIONAL CITIZENSHIP BEHAVIOR AND EMPLOYEE ENGAGEMENT AMONG HEALTHCARE SECTOR EMPLOYEES

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ABSTRACT

Purpose: Discretionary employee behavior and psychological resources are increasingly recognized as central to sustaining workforce engagement in high-pressure pharmaceutical and healthcare work settings. This study examines whether Psychological Capital (PsyCap) mediates the relationship between Organizational Citizenship Behavior (OCB) and Employee Engagement (EE) among employees working in the pharmaceutical and healthcare sector.

Methodology: A quantitative, cross-sectional survey design was adopted. Data were collected from 200 employees working in pharmaceutical and healthcare organizations using a structured questionnaire built on validated scales and a five-point Likert format. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to assess the measurement and structural models, and a bootstrapping procedure was applied to test the mediating role of PsyCap.

Findings: OCB exerted a positive and statistically significant direct effect on EE ($\beta = 0.766$, $t = 14.644$, $p < 0.001$). However, PsyCap did not significantly mediate the OCB–EE relationship ($\beta = 0.014$, $t = 0.545$, $p = 0.585$); neither the OCB→PsyCap path ($\beta = 0.218$, $p = 0.260$) nor the PsyCap→EE path ($\beta = 0.064$, $p = 0.494$) reached significance. The pattern is best described as direct-only, non-mediating.

Practical Implications: Healthcare and pharmaceutical organizations seeking to strengthen workforce engagement should prioritize cultivating discretionary, citizenship-oriented behavior directly through recognition systems, supportive supervision, and role modeling, while continuing to invest in psychological resource-building initiatives (resilience, hope, optimism, self-efficacy training) as a parallel rather than sequential retention strategy.

Originality/value: The study extends the positive-organizational-behavior literature by testing an integrated OCB - PsyCap - EE model within the pharmaceutical/healthcare context, a sector marked by acute turnover and burnout pressures, and offers empirical evidence that qualifies the assumed universality of PsyCap's mediating role in behavior–engagement pathways.

Keywords: Psychological Capital; Organizational Citizenship Behavior; Employee Engagement; Healthcare Sector; Pharmaceutical Industry; PLS-SEM; Mediation Analysis

Introduction

Within the pharmaceutical and healthcare industry, employee behavior and engagement play a decisive role in sustaining quality of care, patient safety, and operational continuity, as a stable and

committed workforce underpins every stage of service delivery. The sector faces persistent workforce pressures: average annual turnover across healthcare roles reached 22.7% in 2025, with certain roles such as nursing assistants and intensive-care staff experiencing rates as high as 40% and 29.7%, respectively (The Resource Company, 2025; NSI National Health Care Retention & RN Staffing Report, 2025). Burnout is similarly widespread; in a large multi-role healthcare survey, close to half of respondents (49.9%) met clinical criteria for burnout, with rates exceeding 54% among non-physician clinical staff and 56% among nurses (Dialog Health, 2025). These pressures translate directly into disengagement, absenteeism, and diminished quality of care, underscoring the pressing need to understand what sustains employee engagement in pharmaceutical and healthcare organizations.

One important factor implicated in this challenge is Organizational Citizenship Behavior (OCB), defined as discretionary employee behaviors that go beyond the formal demands of the job. OCB activities include helping colleagues, taking initiative, and positively influencing the work environment (Fernandes et al., 2021). In pharmaceutical and healthcare workplaces, such behavior often takes the form of nurses covering colleagues' shifts during staffing shortfalls, pharmacists proactively verifying prescriptions beyond protocol, or hospital staff mentoring newly hired colleagues. The formal reward system does not explicitly recognize these acts, but they are nevertheless highly consequential for the organization. Ismail, Sabr, and Nawi (2026) proposed that OCB can increase team performance, enhance organizational functioning, and promote overall organizational performance. High OCB behaviors are likely to lead to positive psychological and behavioral outcomes, as they foster a supportive and cooperative clinical or organizational climate.

Hope, self-efficacy, resilience, and optimism are also important constructs in the study of organizational behavior, together defined as a positive psychological state called Psychological Capital (PsyCap). PsyCap has been extensively validated as an important personal competency that can improve employee performance and well-being, and is arguably even more consequential in emotionally and physically demanding healthcare roles. Psychological capital is an intangible construct derived from positive organizational behavior (Darvishmotevali & Ali, 2020) that helps workers to manage problems, stay motivated, and continue functioning effectively under stressful conditions such as those common in hospitals, pharmacies, and clinical settings. It is a psychological process that converts workplace experiences into positive outcomes. Higher PsyCap predicts employees' confidence, adaptability, and goal orientation, qualities that are important for engagement and productivity in patient-facing and safety-critical roles.

Employee engagement is the level of emotional, cognitive, and physical involvement employees have in their jobs. Engaged employees are more dedicated, enthusiastic, and motivated in their work. Research by Harter (2022) has found that an engaged workforce leads to increased productivity, decreased absenteeism, and decreased turnover, all of which are important factors contributing to organizational effectiveness outcomes with direct implications for patient care quality and pharmaceutical service reliability. Furthermore, healthcare organizations with higher engagement scores tend to report improved patient satisfaction and safety outcomes, further emphasizing the strategic value of engagement in this sector.

While these constructs have received considerable research attention, the literature has more often examined each construct individually rather than integrating OCB, PsyCap, and employee engagement into a single model. It has rarely done so specifically within the pharmaceutical/healthcare context. Previous studies have focused on the link between OCB and engagement, or on the effect of PsyCap on employee outcomes, with few studies combining all three constructs, and fewer still situating this integration among pharmaceutical or healthcare employees. Specifically, the mediating role of Psychological Capital between OCB and employee engagement has not yet been widely explored in this sector. This gap limits deeper insight into the psychological mechanisms that may explain how discretionary behavior translates into engagement among healthcare professionals.

Based on this, the study proposes a mediation model in which psychological capital mediates the relationship between organizational citizenship behavior and employee engagement among employees in pharmaceutical and healthcare organizations. According to the model, OCB is expected to build employees' psychological capital and, consequently, increase their level of engagement. This is a process-oriented study that treats employee behavior as its analytical starting point by including the mediating variable, PsyCap.

This study aims to explore the effects of OCB and Psychological Capital on employee engagement, the relationship between OCB and Psychological Capital, and the mediating role of Psychological Capital between OCB and employee engagement within the pharmaceutical and healthcare sector.

This research makes three important contributions to the literature. Theoretically, it integrates positive psychology with organizational behavior into a single, sector-contextualized model. Empirically, it provides quantitative evidence on the mediating mechanism using data from pharmaceutical and healthcare employees, a workforce segment characterized by disproportionately high turnover and burnout. Practically, it offers guidance for hospitals, pharmaceutical companies, and healthcare providers on cultivating employees' citizenship behaviors and psychological resources to strengthen engagement and retention.

Literature Review

Organizational Citizenship Behavior (OCB)

Organizational Citizenship Behavior (OCB) refers to voluntary employee acts that go beyond formal job specifications and that promote organizational effectiveness. It is often described as extra-role, voluntary, and not explicitly rewarded, yet important to the organization. Based on previous studies by Dai et al. (2022), OCB encompasses the dimensions of helping behaviors, cooperativeness, and organizational loyalty that map closely onto everyday collaborative practice in hospital wards, pharmacy teams, and clinical support units.

Research highlights the role of OCB in enhancing organizational performance and efficiency. For example, Su and Hahn (2023) noted that OCB is crucial in improving efficiency and cost-effectiveness in complex organizations, where collaboration among employees is needed to attain organizational objectives, a dynamic that is especially pronounced in multidisciplinary healthcare teams. Likewise, an investigation into employee engagement and OCB by Sajad Ullah, Jamal, and Naeem (2018) shows a strong positive relationship between them, with higher levels of employee engagement associated with higher levels of OCB. This indicates not only those positive workplace attitudes are necessary for OCB but also that improved OCB can contribute to an improved organizational climate, including in patient-facing environments.

Although there is strong evidence for the positive effects of OCB, other studies suggest that the causal pathways through which OCB affects organizational outcomes remain under-researched, particularly in healthcare and pharmaceutical settings. Although OCB is typically associated with performance and cooperation, there remains only a rudimentary understanding of the psychological processes underlying the translation of OCB into employee engagement or other outcomes among healthcare professionals. This suggests the need to incorporate psychological constructs, such as Psychological Capital, to understand these relationships in sector-specific contexts.

Psychological Capital (PsyCap)

Psychological Capital (PsyCap) is a higher-order construct comprising four key components: Hope, Efficacy, Resilience, and Optimism (the HERO model), grounded in the principles of positive psychology. It is a positive state of mind that enables people to handle challenges and situations well and reach desired outcomes. PsyCap has received considerable interest in organizational behavior

research as a personal resource that improves employee performance and well-being, particularly in healthcare, where emotional labor and clinical uncertainty are routine. In previous studies, PsyCap has emerged as a vital psychological asset that helps employees remain focused, motivated, and resilient in demanding clinical and pharmaceutical environments. People who are high on PsyCap are likely to be optimistic and persistent, and so persist in their efforts in the face of obstacles (Sutton & Roemer, 2024). Furthermore, research has shown that PsyCap is positively associated with a range of positive outcomes in the workplace, including job satisfaction, organizational commitment, and extra-role behaviors such as OCB.

Elsayed, Badran, and Adam (2019), in a study among staff nurses, shed light on the effect of PsyCap on individual and organizational levels of employee behavior in a clinical setting. Their research showed a link between higher levels of PsyCap and greater workplace adaptability and performance, especially in challenging and fast-paced settings such as hospital wards. Moreover, PsyCap is significantly related to OCB in several studies, indicating that higher levels of psychological resources are associated with greater voluntary and cooperative behavior among employees, including healthcare staff.

Nevertheless, the study of PsyCap as a mediating variable in organizational behavior models remains relatively underexplored in the literature, including within pharmaceutical and healthcare research. In the past, its direct effects on outcomes such as engagement and performance have been studied. However, less research has examined its role as a mediator between constructs such as OCB and engagement, specifically among healthcare professionals. This reveals an important gap which the present study seeks to fill.

Employee Engagement (EE)

Employee Engagement (EE) is defined as a positive psychological state in the workplace, related to work, that is associated with vigor, dedication, and absorption. It is a measure of how emotionally, cognitively, and physically committed an employee is to their job roles (Turner, 2020). Engaged healthcare and pharmaceutical employees are likely to be more active, dedicated, and motivated to go beyond the formal call of duty in both patient-facing and technical roles.

The study and practice of employee engagement have been extensive and have shown that it is a key factor in improving organizational results, including in healthcare delivery. Engaged employees demonstrate improved productivity, job performance, and commitment to their organizations. Furthermore, a study by Sajad Ullah, Jamal, and Naeem (2018) revealed that employee engagement is positively correlated with OCB, meaning that more engaged employees are more likely to engage in discretionary actions that benefit the organization, a dynamic with clear relevance to team-based clinical and pharmaceutical work. This further emphasizes the importance of engagement in influencing employee behavior and organizational effectiveness.

Furthermore, the literature indicates that employee engagement is related to organizational climate and leadership, as well as to personal resources such as psychological resources. A notable finding concerns the influence of Psychological Capital on engagement, where workers with high scores in optimism, resilience, and self-efficacy were more likely to be engaged in their work (Yuwono et al., 2023). This suggests that engagement is shaped not only by external factors but also by internal psychological resources, a point of particular relevance for healthcare workforces operating under chronic stress and at elevated risk of burnout.

While numerous studies have examined employee engagement, only handfuls have analyzed the processes that explain the relationship between employee behavior and engagement in pharmaceutical or healthcare settings. This limitation underscores the need for a more holistic perspective that accounts for a combination of behavioral and psychological factors in explaining engagement among this workforce.

Organizational Citizenship Behavior and Psychological Capital

The theoretical connection between Organizational Citizenship Behavior (OCB) and Psychological Capital (PsyCap) can be explained using the perspectives of positive organizational behavior and resource-based theories (Kim & Park, 2025). Proactive and voluntary behaviors that support a positive work culture are associated with the development of positive psychological resources like optimism, resilience, and self-efficacy, as captured by OCB. Resource-based theories state that when employees engage in extra-role behaviors, this can benefit their internal resource base, thereby increasing psychological capacity (Giancaspro, Callea, and Manuti, 2022).

Empirical evidence on this relationship is mixed but suggestive. For instance, Su and Hahn (2023) suggested that Psychological Capital acts as an antecedent of OCB, indicating that employees with higher PsyCap are more likely to engage in citizenship behaviors. Other studies, however, suggest a two-way relationship, whereby cooperative and prosocial behaviors also build psychological resources. Alifuddin and Widodo (2022) found that positive behavioral interactions were significantly associated with higher levels of PsyCap in workplace relationships.

According to these findings, the direction of the relationship remains under-explored, particularly in pharmaceutical and healthcare contexts. Prior research has mostly examined the influence of PsyCap on OCB, but few studies have examined the reverse relationship, whereby OCB helps build PsyCap among healthcare employees specifically. This suggests a gap in understanding OCB as a developmental process for the development of psychological resources within this sector.

Psychological Capital and Employee Engagement (PsyCap→EE)

The link between Psychological Capital and Employee Engagement is well supported by the Job Demands–Resources (JD-R) model, which states that personal resources are crucial to motivation and work involvement, a framework widely applied to high-demand occupations such as nursing and clinical pharmacy. PsyCap is considered a key personal resource that can enable staff to remain energized, resilient, and committed, thereby impacting employee engagement.

This was confirmed by empirical evidence from Das and Borooah (2025), whose study of employees in a public sector bank identified a positive relationship between PsyCap and employee engagement, with components of PsyCap associated with higher levels of vigor and dedication. In addition, Biswal, Srivastava, and Alli (2023) found that improving employees' PsyCap enables them to manage work demands better, resulting in sustained engagement and improved performance, a finding with direct relevance to the resource-intensive demands of clinical and pharmaceutical roles.

However, Slåtten et al. (2021) argued that although PsyCap has a strong direct effect on engagement, the strength of this relationship may vary with contextual factors such as leadership and organizational climate. This implies that the contribution of PsyCap to engagement outcomes is not uniform across settings, warranting closer examination of its role in engagement within sectors such as pharmaceuticals and healthcare.

Mediating Role of Psychological Capital

The mediating role of Psychological Capital can be understood through a resource-transformation mechanism, in which behavioral inputs are transformed into psychological resources that, in turn, affect outcomes. In this context, OCB is considered a behavioral resource that contributes to improving PsyCap, which is expected to improve employee engagement.

Alifuddin and Widodo (2022) conducted an empirical study supporting the existence of such mediation mechanisms in organizational contexts. It has been shown that PsyCap plays a mediating role between various workplace variables and employee outcomes, at times strengthening indirect

relationships beyond direct ones. Similarly, Istiqomah and Nasution (2025) demonstrated that PsyCap often serves as a substantial mediator between workplace behaviors and performance or well-being outcomes.

Although research on PsyCap is emerging, the specific relationship between OCB and employee engagement, mediated by PsyCap, remains relatively unexplored in the pharmaceutical and healthcare sectors. Most existing research has been conducted on direct relationships or on alternative models of PsyCap outside this context. This gap suggests a need for an integrated, sector-specific approach that recognizes PsyCap as a potential mechanism translating discretionary behaviors into engagement among healthcare employees.

Hypotheses Development

Organizational Citizenship Behavior (OCB) has been widely acknowledged as a key determinant of positive employee outcomes, including within healthcare settings. OCB describes discretionary behaviors that benefit cooperation, trust, and harmony in the workplace, all of which are needed to promote engagement among clinical and non-clinical staff alike. Past research indicates that employees who are more inclined to engage in extra-role behavior exhibit greater emotional and psychological attachment to their jobs. These behaviors create a supportive environment that encourages involvement and dedication. Thus, it is hypothesized that higher levels of OCB will translate into higher levels of employee engagement among employees in the pharmaceutical and healthcare sectors.

H01: There is no significant impact of Organizational Citizenship Behavior on Employee Engagement.

H02: There is no significant impact of Organizational Citizenship Behavior on Psychological Capital.

H03: There is no significant impact of Psychological Capital on Employee Engagement.

H04: Psychological Capital does not mediate the relationship between Organizational Citizenship Behavior and Employee Engagement.

Conceptual Framework

This study's conceptual framework centers on the relationship between Organizational Citizenship Behavior (OCB), Psychological Capital (PsyCap), and Employee Engagement (EE) among employees in pharmaceutical and healthcare organizations. OCB is positioned as the predictor variable, encompassing discretionary behaviors that foster a positive work environment. Psychological Capital, comprising hope, efficacy, resilience, and optimism, is treated as a mediating variable linking behavioral inputs to psychological resources.

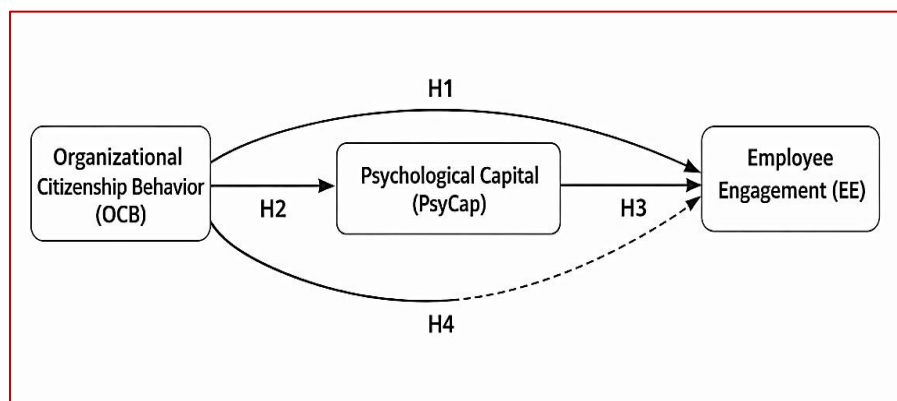


Figure 1 Conceptual Framework

Employee Engagement is viewed as the outcome measure, reflecting employee involvement and commitment. The framework proposes a direct link between OCB and EE, and an indirect link mediated by PsyCap, which is tested in the pharmaceutical/healthcare workforce context.

Methodology

Research Design

A quantitative research design was used to analyze the relationships between Organizational Citizenship Behavior (OCB), Psychological Capital (PsyCap), and Employee Engagement (EE) among pharmaceutical and healthcare employees (Thomas & Zubkov, 2023). A quantitative approach is suitable because it enables the collection of numerical data and statistical analysis to test hypotheses. The study was conducted using a cross-sectional design, in which data were gathered at a single point in time. This design is applicable when relationships between variables can be determined without longitudinal observation, and it enabled data collection within a practical time frame across busy healthcare and pharmaceutical work settings.

Population, Sample, and Data Collection

The population for this study comprised employees working in pharmaceutical companies, hospitals, and other healthcare service organizations. A sample of 200 respondents was used to obtain information. A structured questionnaire was administered via an online platform to gather the data. The questionnaire consisted of closed-ended questions on a 5-point Likert scale, from strongly disagree to agree strongly. A convenience sampling technique was used because of its ease of access and practicality, given the operational constraints of healthcare and pharmaceutical work environments.

Measurement of Variables

All variables used in the present study were measured using validated, established scales. OCB was assessed using a multi-item scale that includes discretionary behaviors such as helping others, sharing knowledge, and contributing to organizational effectiveness (Dhar, Dhar, and Torani, 2023). The Psychological Capital Questionnaire (PCQ) was used to measure Psychological Capital, covering the dimensions of self-efficacy, hope, optimism, and resilience (Lipińska-Grobelny & Zwardoń-Kuchciak, 2021). Employee Engagement was measured using a scale encompassing the essential elements of vigor, dedication, and absorption (Dhar & Dhar, 2018). All items were modified to fit the pharmaceutical/healthcare work context and measured on a 5-point Likert scale.

Reliability and Validity

Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the reliability and validity of the measurement model. Cronbach's Alpha and Composite Reliability were used to assess internal consistency, with scores above 0.70 considered acceptable. Average Variance Extracted (AVE) was used to test convergent validity, and the Fornell-Larcker criterion was used to test discriminant validity. These steps ensured that the constructs reflected the variables under investigation and that they were empirically distinct.

Common Method Bias

Given that the data were collected using self-reported measures, the potential for common method bias was considered, an issue of particular concern given time and workload pressures typical of healthcare and pharmaceutical work. To minimize this, respondents were assured of anonymity and confidentiality, reducing social desirability bias. The questionnaire was framed clearly and to avoid ambiguity, and participation was voluntary, with respondents encouraged to answer freely without pressure. With these precautions, some potential for common method bias remains, which is acknowledged as a study limitation.

Data Screening

The data were checked for accuracy and suitability and were screened prior to analysis. Any missing values in the data set were examined, and no issues were identified. While PLS-SEM does not explicitly impose normality assumptions, basic checks were conducted to confirm a satisfactory data distribution. Outliers were also checked, and no values were identified that would have negatively affected the results. These steps made the data set appropriate for further statistical analysis.

Data Analysis Techniques

Descriptive and inferential statistical techniques were applied to analyze the data. Descriptive statistics were used to characterize the sample and the major variables. The hypothesized relationships among the constructs were tested using Structural Equation Modeling with SmartPLS. To ensure the model's reliability and validity, the measurement model was evaluated prior to the structural model (Leiva-Candia et al., 2022). Bootstrapping procedures were performed for the mediation analysis to assess the indirect effect of Psychological Capital on the relationship between Organizational Citizenship Behavior and Employee Engagement.

Ethical Considerations

Ethical considerations were observed throughout the research process. All participants were informed about the purpose of the study, and their consent was obtained prior to participation (Suri, 2020). Respondents' anonymity was guaranteed, and the information was collected for academic purposes while maintaining confidentiality. Participation was non-compulsory, and respondents could withdraw at any time.

Results

Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the data. The measurement model was first validated to ensure reliability and validity, followed by validation of the structural relationships. Finally, the mediation model was tested to examine the relationships between Organizational Citizenship Behavior, Psychological Capital, and Employee Engagement among pharmaceutical and healthcare employees.

Measurement Model Assessment

The measurement model was assessed to check the reliability and validity of the constructs: Organizational Citizenship Behavior (OCB), Psychological Capital (PCQ), and Employee Engagement (EE). The indicators were evaluated for reliability, internal consistency, convergent validity, and discriminant validity.

Indicator Reliability

Outer loadings of the measurement items were examined to assess the reliability of the indicators. Most indicators showed loadings near or exceeding the recommended value of 0.70 and were regarded as acceptable. A few items showed slightly lower loadings but were retained because their values exceeded 0.60 and contributed meaningfully to their respective constructs.

Internal Consistency, Reliability, and Convergent Validity

Cronbach's Alpha and Composite Reliability (ρ_a and ρ_c) were used to assess internal consistency, and Average Variance Extracted (AVE) was used to assess convergent validity.

Table 1 Construct Reliability and Validity

Construct	Cronbach's Alpha	CR (ρ_a)	CR (ρ_c)	AVE
EE	0.945	0.946	0.950	0.518
PCQ	0.844	0.864	0.871	0.505
OCB	0.933	0.935	0.940	0.502

All constructs exceeded the 0.70 reliability threshold for Cronbach's Alpha and Composite Reliability, and AVE values exceeded 0.50, confirming acceptable internal consistency and convergent validity across OCB, PsyCap, and EE.

Discriminant Validity

Discriminant validity was assessed using the Fornell-Larcker criterion, according to which the square root of AVE for each construct must exceed its correlations with other constructs.

Table 2 Fornell-Larcker Criterion

Construct	EE	OCB	PCQ
EE	0.691	–	–
OCB	0.780	0.655	–
PCQ	0.231	0.218	0.628

The results indicate that the square roots of the AVE values exceed the inter-construct correlations, confirming discriminant validity. Hence, all constructs are empirically distinct and measure different concepts.

Structural Model Assessment

Collinearity Assessment (VIF)

Prior to examining the structural relationships, the Variance Inflation Factor (VIF) was used to check for collinearity among the predictor constructs. Collinearity problems occur when there is high correlation among independent variables, which can bias the estimation of path coefficients. Generally, VIF values below 5 indicate no multicollinearity, with values below 3.3 representing a more conservative standard.

VIF values for all structural paths were obtained and found to be within the acceptable range. Specifically, the VIF values for the relationships between Organizational Citizenship Behavior (OCB) and Employee Engagement (EE), OCB and Psychological Capital (PCQ), and PCQ and Employee Engagement (EE) were all close to the minimum possible value of 1.0.

These results suggest that there is no meaningful multicollinearity between the predictor constructs. Thus, the structural model is free of collinearity concerns, and the estimated path coefficients are reliable, with no substantial overlap among the predictors' effects.

Hypothesis Testing

H01: There is no significant impact of Organizational Citizenship Behavior (OCB) on Employee Engagement (EE).

This hypothesis was rejected ($p < 0.05$); therefore, OCB has a statistically significant impact on EE among pharmaceutical and healthcare employees.

H02: There is no significant impact of Organizational Citizenship Behavior on Psychological Capital (PCQ).

This hypothesis was retained ($p > 0.05$); therefore, OCB does not have a statistically significant impact on PCQ in this sample.

H03: There is no significant impact of Psychological Capital on Employee Engagement.

This hypothesis was also retained ($p > 0.05$); therefore, PCQ does not have a statistically significant impact on EE in this sample.

Mediation Analysis

H04: Psychological Capital does not mediate the relationship between Organizational Citizenship Behavior and Employee Engagement.

The relationship between Organizational Citizenship Behavior (OCB) and Employee Engagement (EE) was examined using mediation analysis to determine whether Psychological Capital (PCQ) serves as an intervening variable among pharmaceutical and healthcare employees. The analysis followed the recommended procedure of first determining the significance of the indirect effect before assessing the direct effect.

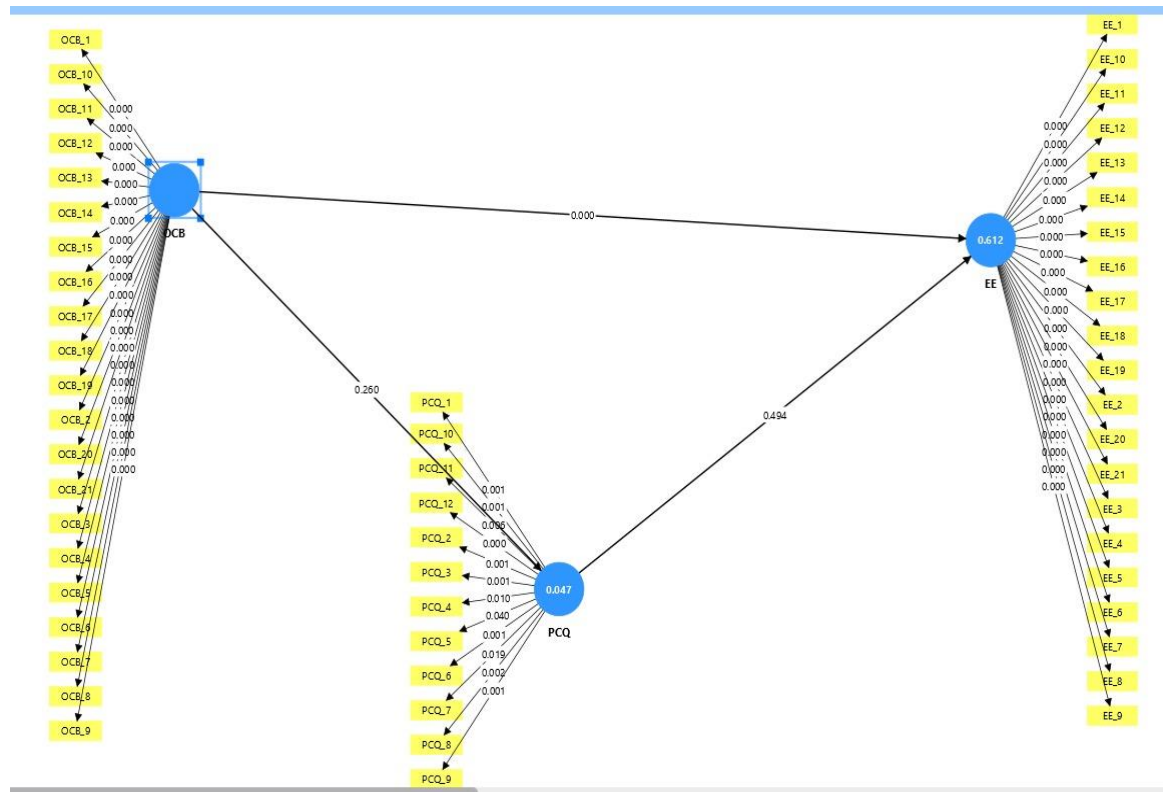


Figure 2 The relationship between Organizational Citizenship Behavior (OCB) and Employee Engagement (EE).

The indirect effect of OCB on EE through PCQ was evaluated using a bootstrapping approach. The results showed that the indirect effect was not statistically significant ($\beta = 0.014$, $t = 0.545$, $p = 0.585$). A p-value greater than 0.05 and a t-value less than 1.96 indicate that the indirect effect is not supported.

Table 3 Indirect Effect (Mediation Path)

Relationship	β (Original Sample)	T-value	P-value	Decision
OCB $\rightarrow$ PCQ $\rightarrow$ EE	0.014	0.545	0.585	Not Significant

Given that the indirect effect is not significant, the next step in the mediation decision framework is to examine the direct effect. The direct relationship between OCB and EE was statistically significant ($\beta = 0.766$, $t = 14.644$, $p < 0.001$). This indicates that Organizational Citizenship Behavior has a strong and significant direct impact on Employee Engagement among employees in the pharmaceutical and healthcare sectors.

Table 4 Direct Effects

Relationship	β (Original Sample)	T-value	P-value	Decision
OCB $\rightarrow$ EE	0.766	14.644	0.000	Significant
OCB $\rightarrow$ PCQ	0.218	1.127	0.260	Not Significant
PCQ $\rightarrow$ EE	0.064	0.684	0.494	Not Significant

According to these results, the model can be classified as direct-only, non-mediation. This suggests that OCB does not influence EE through the mechanism of Psychological Capital among the sampled

pharmaceutical and healthcare employees; rather, OCB exerts a direct impact on EE, with no mediating effect of PCQ.

In addition, the individual paths through the mediator were also insignificant, with the relationship between OCB and PCQ ($\beta = 0.218$, $p = 0.260$) and between PCQ and EE ($\beta = 0.064$, $p = 0.494$) not reaching statistical significance. This further confirms the absence of mediation in this sector-specific sample.

Discussion and Conclusion

This study adopted a quantitative approach and PLS-SEM to explore the relationships among Organizational Citizenship Behavior (OCB), Psychological Capital (PCQ), and Employee Engagement (EE) among employees in the pharmaceutical and healthcare sectors. The results showed that OCB has a positive and significant impact on EE; thus, the discretionary and supportive behaviors of pharmaceutical and healthcare employees are positively associated with active involvement and work commitment.

However, Employee Engagement was not significantly affected by Psychological Capital, nor was Organizational Citizenship Behavior in this sample. Consequently, the mediation analysis found no mediating effect of PCQ between OCB and EE. The results indicate that the impact of OCB on engagement among pharmaceutical and healthcare employees is predominantly direct, rather than mediated by the psychological resources operationalized in this study.

Overall, the study supports a strong influence of OCB on employee engagement within the pharmaceutical/healthcare sector, while calling into question the mediating role of Psychological Capital in this particular context.

Theoretical Implications

This study contributes empirically to the Organizational Behavior literature on the relationships between OCB, PCQ, and EE within pharmaceutical and healthcare settings. First, it confirms prior studies' findings that Organizational Citizenship Behavior is a significant predictor of employee engagement. The positive, significant correlation found in this study corroborates findings that extra-role behaviors are positively related to employees' psychological attachment to their work, which, in turn, is expressed through voluntary behavior.

Second, the results support a more cautious interpretation of Psychological Capital as a mediator between behavioral and attitudinal outcomes. The absence of a mediation effect indicates that PCQ does not universally function as a mediating variable, particularly in contexts such as this pharmaceutical/healthcare sample, where behavioral factors exert strong direct effects. This adds nuance to the literature by suggesting that the role of PsyCap may be context-specific and sector-dependent, warranting caution in generalizing mediation findings from other industries to healthcare.

Finally, this study adds to methodological understanding by demonstrating that a single dominant predictor (OCB) can account for a high level of explained variance (R^2) in engagement, even where other hypothesized paths in the model are statistically insignificant.

Managerial and Practical Implications

The findings suggest that by fostering and promoting OCB, pharmaceutical companies, hospitals, and other healthcare organizations can meaningfully boost employee engagement. Human Resource practices can contribute significantly by recognizing and incentivizing nurses, pharmacists, technicians, and administrative staff who are helpful, cooperative, and proactive in contributing beyond the formal scope of their job responsibilities.

Leadership is also a critical factor in promoting OCB within clinical and pharmaceutical teams. Managers and clinical supervisors can foster a culture of cooperation and care by modeling extra-role behavior, reinforcing it through recognition, and creating structured opportunities for staff to engage in supportive, citizenship-oriented activities. This can, in turn, improve overall engagement within the organization, with potential downstream benefits for patient safety and service quality.

Although this study found that the direct effect of Psychological Capital on engagement was not statistically significant, PsyCap remains a valuable personal resource in its own right, particularly given the elevated burnout and turnover pressures documented across the healthcare workforce (Dialog Health, 2025; NSI National Health Care Retention & RN Staffing Report, 2025). Investment in resilience, hope, optimism, and self-efficacy-building programs is therefore recommended as a parallel well-being strategy for pharmaceutical and healthcare staff, independent of its demonstrated role or lack thereof as a mediator in this specific model.

Limitations and Future Research

Several limitations of this study should be noted. First, the cross-sectional research method cannot establish causal relationships between variables. Longitudinal studies may be conducted in future research to examine these relationships among pharmaceutical and healthcare employees over time, particularly as OCB, PsyCap, and engagement may evolve during periods of organizational or clinical stress.

Second, the sample size was relatively modest, and convenience sampling was used, which may limit the generalizability of results across the diverse sub-sectors of pharmaceuticals and healthcare (e.g., hospitals, community pharmacies, manufacturing, and research organizations). Larger and more varied samples spanning multiple healthcare sub-sectors and geographic regions would strengthen external validity in future research.

Third, this research relied on self-reported data, which may be vulnerable to common method bias and social desirability effects. These concerns can be pronounced in clinical environments where professional norms strongly favor cooperative behavior. Future studies could incorporate multiple data sources, such as supervisor ratings or objective measures of performance and patient outcomes.

For future research directions, researchers could consider incorporating additional factors that may influence Employee Engagement in pharmaceutical and healthcare settings, such as leadership style, organizational culture, job satisfaction, perceived organizational support, or work-related burnout. Additionally, alternative mediators and/or moderators, such as job crafting, supervisor support, or emotional labor, could be explored to gain further insight into the mechanisms underlying the relationship between OCB and engagement in this sector.

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