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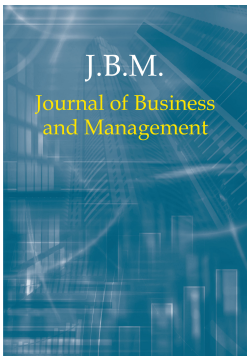

J. of Business and Management

ISSN online: 3049-9062 - ISSN print: 1535-668X
https://www.inderscience.com/jbm

Does employee engagement buffer the relationship between occupational self-efficacy and organisational citizenship behaviour?

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DOI: 10.1504/JBM.2025.10071252

Article History:

Received:	08 October 2024
Last revised:	04 April 2025
Accepted:	08 April 2025
Published online:	27 June 2025

Does employee engagement buffer the relationship between occupational self-efficacy and organisational citizenship behaviour?

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Abstract: This study examines the impact of occupational self-efficacy on organisational citizenship behaviour (OCB) in West Bengal's healthcare sector, with employee engagement as a mediating factor. Data were collected using a structured questionnaire, analysed via SPSS AMOS, SPSS, and MS Excel. Confirmatory factor analysis (CFA) assessed model fit, followed by linear regression and bootstrapping approach for mediation analysis. Occupational self-efficacy significantly influences OCB, with employee engagement mediating this relationship. This study uniquely explores a broad range of healthcare employees in West Bengal, linking the findings to social exchange and self-efficacy theories. The study highlights the critical role of employee engagement in enhancing OCB. HR departments and administrators should focus on fostering engagement, organisational commitment, and job satisfaction to improve OCB.

Keywords: occupational self-efficacy; OSE; employee engagement; organisational citizenship behaviour; OCB; healthcare organisations; social exchange theory; SET; self-efficacy theory.

Reference to this paper should be made as follows: Bardhan, S. and Haque, S. (2025) 'Does employee engagement buffer the relationship between occupational self-efficacy and organisational citizenship behaviour?', *J. Business and Management*, Vol. 30, No. 1, pp.45–68.

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1 Introduction

Effectively managing people in the healthcare sector is crucial for providing high-quality patient care. In India, addressing the challenges of the human side of healthcare requires a broad, inclusive approach to meet the needs of a growing population. This calls for a motivated and well-equipped workforce capable of practical problem-solving and sound decision-making. Hence, healthcare workers across organisations of all sizes and locations must have knowledge, skills, involvement, and personal effectiveness (Tshionza et al., 2022).

Throughout the past three years, the COVID-19 pandemic has subjected healthcare practitioners and their families to an unprecedented level of risk. The combination of stressors and challenges stemming from the pandemic has imposed a disproportionate burden on caregivers, resulting in significant cognitive exhaustion and an elevated risk of mortality and incapacitation (Chanana and Sangeeta, 2021). This situation has profoundly disrupted the healthcare landscape in India and beyond, highlighting the pressing need for systemic support and resilience in healthcare systems (Mukherjee and Parashar, 2020).

The stressors faced by healthcare professionals are amplified by unforeseen challenges and the routine yet demanding doctor-patient interactions (Patel et al., 2018). In addition to their primary duties of saving lives and providing medical care, healthcare workers must also manage their mental well-being while coping with the pressures of patient treatment (Yuan et al., 2021). Additionally, workplace difficulties, stress and crises, low pay, and uneven distribution of healthcare personnel contribute to the strain on both healthcare workers and the larger medical system (Tshionza et al., 2022).

India's healthcare sector has made significant strides but continues to face critical challenges, including low public spending (2.9% of GDP), high out-of-pocket costs, and inequitable access to care. While India's doctor-to-population ratio (1:834) exceeds World Health Organization (WHO) standards, shortages persist in public and rural healthcare due to professionals favouring private practice. Key indicators, such as infant mortality (25.5 per 1,000) and maternal mortality (97 per 100,000), highlight disparities (Meghani et al., 2022).

While national policies emphasise healthcare expansion, systemic inefficiencies and resource constraints hinder effective implementation. West Bengal, despite better maternal and child health outcomes than many states, faces severe workforce shortages, with a doctor-to-population ratio of 1:10,411. Infrastructure gaps, rural-urban disparities, high patient loads, and financial constraints further strain the system, leading to burnout and high attrition (Indus Health Plus, n.d.).

Given the severe manpower shortages and infrastructural deficits in India's healthcare sector, particularly in West Bengal, resolving these challenges in the short term remains

difficult. Therefore, healthcare organisations and policymakers must optimise existing human resources. In such a high-pressure environment, where employees face extreme workloads and stress, EE becomes critical to maintaining productivity and encouraging discretionary efforts beyond formal job roles. Strengthening engagement strategies can help sustain workforce morale, improve retention, and ensure the effective delivery of healthcare services despite systemic constraints. Engaged healthcare professionals not only contribute to a more supportive work environment but also enhance the quality of care delivered to patients. Consequently, nurturing EE within healthcare organisations is a tacit directive of prime urgency. Yet, intriguingly, the data and statistics pertaining to EE within the healthcare workforce, not only in India but also on a global scale, remain surprisingly sporadic and inconsistent. EE among nurses and physicians has been the subjects of a few noteworthy studies, but other hospital staff members have received gravely inadequate attention (Tshionza et al., 2022). The primary impetus of the current empirical research is to address this gap and investigate the role of EE within the precincts of healthcare establishments including employees from different levels.

The study aims to investigate the contribution of occupational self-efficacy (OSE) as an antecedent influencing EE and catalysing employees towards organisational citizenship behaviours (OCBs) as a consequence. Additionally, the study explores the possibility that EE could act as an intermediate variable between employee citizenship actions and OSE. While some studies touch upon EE as an intermediate variable (Biswas and Bhatnagar, 2013), the causal connection between OSE, EE, and pro-social conduct, is not adequately explored in the scholarly literature currently in publication. This gap is particularly evident within the context of healthcare settings.

Self-efficacy is having confidence in, appraisal of, and awareness of one's capacity to execute a task successfully (Peng et al., 2019). The conviction that employees are capable of competently organising and shaping their surrounding environment is an integral facet of their OSE perceptions (Van Hootegem and De Witte, 2019). OCB, denoting conduct surpassing formal role requisites essentially rooted in discretion, constitutes a pivotal construct (Organ, 1988). Notably engaged employees are presumed to operate conscientiously and constructively (Al Ahad and Khan, 2020; Bennett and Robinson, 2000). EE is defined as "positive, fulfilling, work-related state of mind, which is categorised by vigour, dedication and absorption" [Schaufeli, (2021), p.2]. By prioritising engagement, organisations cultivate a conducive atmosphere of trust, open communication, and recognition, which makes healthcare professionals feel valued and empowered (Albrecht et al., 2021). In this context, EE serves as a psychological bridge, enhancing the connection between a supportive environment that nurtures high self-efficacy and the willingness to demonstrate OCB (Rasool et al., 2021).

Understanding the link between OSE, EE, and OCB is crucial in healthcare. High OSE boosts resilience, motivation, and adaptability, encouraging healthcare workers to exceed their formal roles and contribute to organisational effectiveness. EE enhances this relationship by fostering commitment and emotional investment. When employees believe in their abilities (OSE), they become more engaged (EE), which, in turn, leads to behaviours like helping colleagues, sharing knowledge, and providing exceptional patient care (Saks, 2019). For instance, a nurse's high OSE enables her to effectively administer medications and coordinate care with doctors. This confidence increases her EE, as she shares insights for improving patient care and collaborates with colleagues on workflow efficiency. Consequently, her engagement leads to OCB, where she volunteers to mentor

new staff and stays late to ensure proper patient care. Thus, her OSE enhances her EE, ultimately resulting in OCB that benefits both her organisation and the patients served.

By nurturing self-efficacy and engagement, this study seeks to highlight how engagement not only improves individual performance but also fosters discretionary behaviours. Thus, the primary research question that this study aims to address is:

Research question	How does OSE influence OCB through the mediating role of employee engagement (EE) in resource-constrained healthcare settings?

This study contributes to the literature by exploring how OSE influences EE and pro-social behaviour. It examines how EE facilitates the relationship between OSE and OCB, integrating social exchange theory (SET) and self-efficacy theory. The research fills a gap by addressing how healthcare employees may exceed formal roles due to personal efficacy or engagement, particularly in resource-constrained and high-pressure environments. In regions like India and West Bengal, which face significant resource constraints, policymakers can enhance EE by fostering personal resources such as self-efficacy. In the healthcare sector, where employees work under immense pressure, this study is particularly novel. It reinstates the relevance of EE, which is often overlooked, and provides thoughtful insights to the practitioners on developing customised interventions that boosts individual self-efficacy leading to engagement and pro-social behaviour which is specifically pertinent in strenuous healthcare settings. To the best of the researcher's knowledge, no previous study has developed such an integrated model specifically for the healthcare sector in West Bengal, a region with distinctive characteristics.

The paper is structured as follows: Section 2 covers literature review and hypothesis development, Section 3 presents the research framework, and Section 4 provides the conceptual background. Sections 5, 6, and 7 detail research methodology, findings, and discussion. Section 8 highlights theoretical and practical implications, Section 9 addresses limitations and future research, and Section 10 offers the conclusion.

2 Review of literature

2.1 Self-efficacy for shaping OCB

Researchers have increasingly focused on OSE in recent times (Van Hootegem and De Witte, 2019) particularly as a salient determinant of EE. OSE refers to "the belief in one's ability and competence to perform in an occupation" [Pethe et al., 2000; Chaudhary et al., (2013), p.372]. Self-efficacy can be perceived either in terms of self-efficacy in general or self-efficacy related to any particular domain (Azizli et al., 2015). According to researchers, people who are very dedicated to their work devote more time and resources to developing their talents, which helps them refine their self-efficacy more effectively than others who are not as dedicated (Park and Jung, 2015; Haque et al., 2024).

OCB is described as "an individual behaviour that is discretionary, not directly or explicitly recognised by the formal reward system, and that in aggregate promotes the effective functioning of the organisation" [Organ, (1988), p.4]. OCBs constitute acts undertaken by employees that are essentially beyond the contours of a contractual

stipulation or individual job descriptions. Such efforts are driven by an intrinsic inclination to support the colleagues and the organisation, without anticipating rewards (Grego-Planer, 2019; Podsakoff et al., 2000).

Authors have emphasised the significant roles played by personality traits, job attitudes, job cognitions, leadership dynamics, and contextual factors in orchestrating OCB (Organ, 1988; Podsakoff et al., 1997, 2009; Grego-Planer, 2019). Moreover, scholars have established associations between OCB and significant outcomes, such as job performance and various forms of withdrawal activities like exit intentions, absenteeism, and turnover (Podsakoff et al., 2009).

Since Kahn (1990) developed the personal engagement paradigm, there has been an increasing interest in applying EE across numerous academic fields, such as psychology, business, management, and human resource development (HRD) (Shuck et al., 2017). Both within scholarly inquiry and practical implementation, the scrutiny of the engagement construct has retained paramount prominence (Saks and Gruman, 2014). The notion of engagement, characterised as "the harnessing of organisation members' selves to their work roles" [Kahn, (1990), p.694], has gained widespread acceptance due to the belief that engaged employees offer a judicious edge within an increasingly competitive organisational landscape.

According to Saks (2019), companies can foster EE by offering social support, incentives and acknowledgment, operational and equitable distribution of resources, chances for education and advancement, and a focus on a varied range of abilities. Sun and Bunchapattanasakda (2019), conversely, advanced the perspective that individual performance metrics (such as organisational commitment and positive behaviour) exhibit a constructive correlation with EE, alongside yielding favourable organisational performance (such as financial return, customer satisfaction, etc.).

2.2 Hypothesis development

2.2.1 OSE and EE

Pursuant to the job demand-resource (JD-R) paradigm, job resources have come to be acknowledged as a substantive mark for EE (Bakker and Demerouti, 2007; Chaudhary et al., 2013). In light of this, in 2007 Xanthapoulou added an aspect of personal resources to the JD-R framework. She proposed that personal resources had a separate and independent impact on work engagement from job resources. Grounded in social cognitive theory (SCT) (Bandura and Wood, 1989), individual choices, aspirations, and the magnitude of effort invested in a task are all impelled by the expectations individuals hold of their own efficacious ability (Bandura, 1986, 1997). According to the tenets of Bandura's SCT, human agency is derived from efficacy beliefs, which provide people the drive to engage in clearly beneficial behaviours linked to superior performance. This serves as the conceptual link between OSE and EE.

Hypothesis 1 (H1) OSE has a positive impact on EE.

2.2.2 EE and OCB

As per the SET, if both parties adhere to the norms of reciprocity, the relationship grows to be more loyal and trustworthy, resulting in mutual commitments (Cropanzano and Mitchell, 2005; George and Joseph, 2015). This continuum of mutually pleasurable

exchanges, in turn, nurtures an environment that incentivises sustained engagement. In consequence, highly engaged employees are presumably in more reliable and trusted relationships with their employers, increasing the likelihood of articulating favourable perceptions and intentions towards the organisation. It has been determined that engagement is favourably correlated with organisational commitment and negatively associated with intention to resign. Furthermore, engagement extends its relevance beyond the workplace, manifesting in behaviours that essentially surpasses job definition and work performance (Schaufeli and Bakker, 2004; Rasheed et al., 2013). Building upon the extant literature, the study posits the following hypotheses:

Hypothesis 2 (H2) There is positive impact of EE on OCB.

2.2.3 OSE and OCB

Extant research has showcased a constructive alignment between OSE and OCB. Pradhan et al. (2020) studied the linkage between citizenship behaviours and OSE across public and private manufacturing companies finding a positive association. Further investigations were conducted with linked variables in different contexts (Raharso, 2022; Ullah et al., 2021). The following hypothesis was drawn in accordance with the previous research studies:

Hypothesis 3 (H3) A positive relation exists between OSE and OCB.

2.2.4 EE as a mediator

Expanding upon previous research findings, Biswas and Bhatnagar (2013) demonstrated that EE acts as a buffer in the relationship between perceived organisational assistance and employee-organisation fit. Again, Yalabik et al. (2013) found that engagement affects the connection between emotional commitment and the desire to give up. Kasekende (2017) presented in a different study that EE mediates the relationship, to some extent, between the psychological contract and discrete behaviour in government employees. Consequently, based on these evidences, the following is our next hypothesis:

Hypothesis 4 (H4) EE plays a mediating role between OSE and OCB.

3 Research framework

The objective of the current research is to investigate how OSE influences OCB through the mediating role of EE, particularly in resource-constrained healthcare settings (Figure 1).

4 Theoretical background

For this study, SET and self-efficacy theory were chosen over the JD-R model and SCT to explain EE as a mediator between OSE and OCB in healthcare settings. SCT was not selected as it primarily emphasises observational learning, behavioural modelling, and self-regulation, which is more relevant to education and skill development than workplace engagement. While SCT incorporates self-efficacy, it does not focus on its

role in EE and discretionary workplace behaviours. In contrast, SET provides a stronger foundation by explaining how employees reciprocate organisational support through greater engagement and proactive behaviours. Additionally, self-efficacy theory directly addresses how employees' confidence in their abilities influences motivation, engagement, and performance, making it more applicable to this study's context.

Figure 1 Research framework

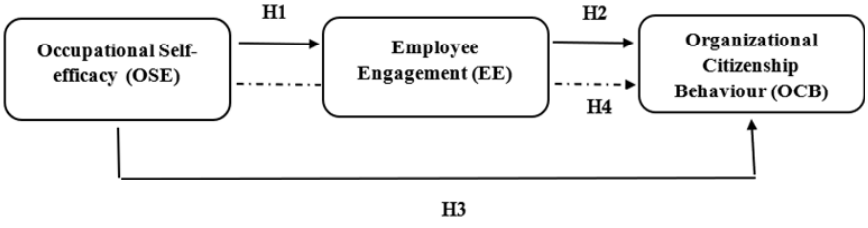
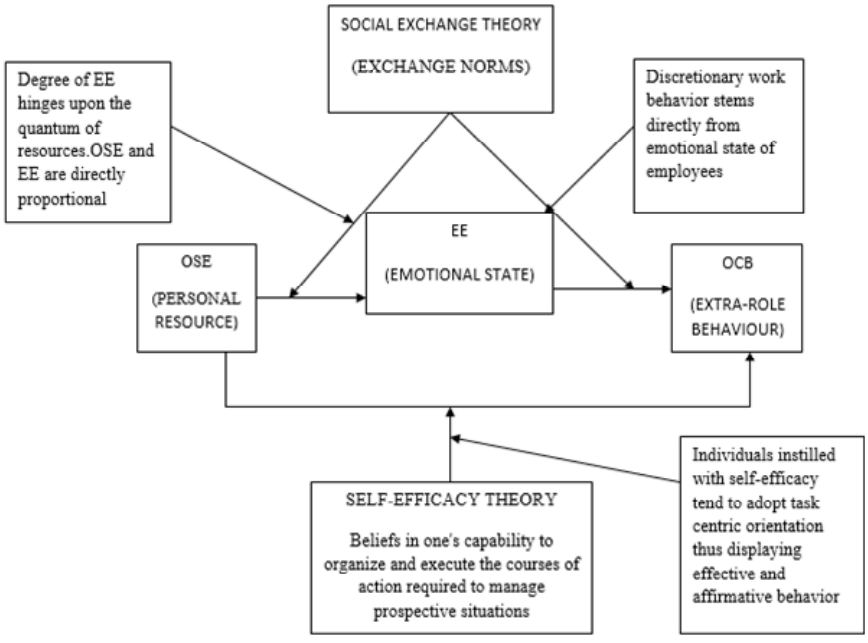


Figure 2 Theoretical framework highlighting the contributions of SET and self-efficacy theory



Given severe workforce shortages, high-pressure work environments, and resource constraints – particularly in West Bengal's healthcare sector – enhancing EE and discretionary efforts (OCB) becomes critical. Since expanding manpower and infrastructure is not an immediate solution, this study emphasises psychological and behavioural mechanisms to improve employee performance and retention within existing limitations. SET and self-efficacy theory provide a comprehensive framework, illustrating how employees' confidence in their skills (OSE) and EE drive discretionary behaviours, even under extreme pressure.

This study is rooted in SET and self-efficacy theory, which together explain the relationships among OSE, EE and OCB. SET underscores workplace reciprocity,

suggesting that employees who feel valued and supported are more likely to engage and contribute beyond their formal roles. Self-efficacy theory highlights how belief in one's abilities fosters motivation, performance, and resilience in challenging environments.

OSE is designated as the independent variable (IV) because self-efficacy theory suggests that individuals with higher confidence in their professional competencies are more likely to remain engaged, persist through challenges, and adopt proactive behaviours – particularly in resource-constrained settings. EE is the mediating variable (MV) since SET posits that employees who perceive fairness, support, and meaningful work exhibit higher engagement levels, which, in turn, enhances discretionary workplace contributions. OCB is chosen as the dependent variable (DV) because both theories indicate that high self-efficacy and engagement drive employees to go beyond their prescribed duties, fostering a cooperative and productive work environment.

By integrating these theoretical perspectives, this study presents a practical and adaptable framework to address workforce challenges in resource-limited healthcare settings, ensuring sustained motivation, improved retention, and enhanced service delivery despite systemic constraints (refer to Figure 2).

5 Research methodology

5.1 Research context

India's healthcare system continues to struggle with resource gaps despite ongoing improvements. The country has a doctor-to-population ratio of 0.74 per 1,000 individuals, which falls below the WHO's recommended standard of 1 per 1,000. Additionally, the number of nurses and midwives is only 1.7 per 1,000 people, whereas the global average is around 3 per 1,000. These workforce shortages are compounded by an unequal distribution of healthcare professionals, with urban areas having a much higher concentration of doctors and medical staff compared to rural and semi-urban regions. Furthermore, India has 13 hospital beds per 100,000 individuals, significantly lower than the global average, leading to overburdened healthcare facilities. The country's healthcare expenditure has been increasing, with the industry valued at $370 billion in 2022, projected to exceed $610 billion by 2026, yet challenges in manpower and infrastructure persist (KIMSAC – Kalinga Institute of Medical Sciences Academic Channel, n.d.)

West Bengal also faces significant healthcare workforce shortages. The state has a doctor-to-population ratio of 1.6 per 1,000 individuals, lower than the national average of 2.25 per 1,000. This shortage is further compounded by unequal distribution, with urban centres such as Kolkata having better healthcare access than rural and semi-urban areas. Nurse-to-patient ratios remain critically low, adding further strain to the healthcare system. The state also struggles with high patient loads and inadequate security measures for healthcare workers, which has led to protests and strikes demanding better protection and working conditions. The government health expenditure per capita in West Bengal is ₹1,088, which is below the national average of ₹1,753, reflecting the need for increased investment in healthcare personnel and infrastructure. Additionally, out-of-pocket expenditure in the state stands at 69.8%, significantly increasing the financial burden on individuals seeking medical care (Indus Health Plus, n.d.).

These statistics highlight the urgent need for strategic workforce planning, better distribution of healthcare professionals, and increased investment in medical infrastructure to bridge the healthcare resource gap both in India and West Bengal. Addressing these challenges is crucial to ensuring affordable, accessible, and high-quality healthcare services for all citizens.

5.2 Data collection

This study explored a diverse group of employees from public and private hospitals in West Bengal, India, employing convenience sampling, a commonly used technique in healthcare research due to constraints in time and accessibility (Golzar et al., 2022). To reduce biases and enhance sample diversity, researchers ensured representative participation by distributing questionnaires at varied times and locations. The study covered 10 hospitals, including 6 government hospitals, which are fully owned and managed by the State Government, and 4 private corporate hospitals, operating as private limited companies or under trust management.

Participants in the study were required to be at least 18 years old, regardless of gender. Due to the limited availability of data on the number of employees in hospitals in West Bengal, the sample size was determined using Roscoe's (1975) concept, as cited in Sekaran (2006). This guideline suggests that for multivariate research, the sample size should be at least ten times the number of variables in the research model. Accordingly, with three variables in this study, a minimum sample size of 90 participants was required, based on the recommendation that the sample size should be 30 times the number of variables.

Each respondent was given 20 days to complete the survey. However, due to the demanding nature of the hospital and participants' time constraints, data collection extended over nine months, with multiple reminders sent to encourage participation. Ultimately, 310 responses were received. After data cleaning and screening, responses containing missing data or inconsistencies were excluded, resulting in 280 valid responses for analysis. This corresponded to a 77.7% response rate, which is considered sufficient for research purposes (Babbie, 1990).

5.3 Measures

Data collection was conducted using a carefully designed questionnaire, split into two sections. Section A focused on gathering information about respondents' demographic details, while Section B included questions to gauge respondents' opinions on item constructs using a Likert scale. For the study, the researchers utilised adapted versions of the scales.

EE was assessed using the Utrecht Work Engagement Scale (UWES-9) of Schaufeli and Bakker (2004), comprising nine items across three dimensions: vigour, dedication, and absorption, scored on a seven-point Likert scale (Cronbach's $\alpha = 0.791$); an example item is "I feel bursting with energy at work." OSE was measured using a modified six-dimensional scale by Pethe et al. (1999), with items on command, personal effectiveness, adaptability, and confidence, rated on a five-point Likert scale (Cronbach's $\alpha = 0.806$); an example item is "I am able to handle unforeseen situations at my workplace." OCB was evaluated with a modified 24-item scale by Podsakoff et al. (1990)

across five dimensions, using a seven-point Likert scale (Cronbach's $\alpha = 0.912$); an example item is "I am always ready to lend a helping hand to those around me."

5.4 Statistical analysis

IBM SPSS AMOS 22 and SPSS Statistics 20 were used for data analysis. Furthermore, a few calculations were made using MS-Excel. The variance inflation factor (VIF) was used to assess multi-collinearity, and Cronbach alpha and composite reliability (CR) were used to assess the scale's internal consistency. The divergent validity of the scale was assessed using the Fornell and Larcker criterion, while the CV was assessed using the average variance extracted (AVE) computation. After assessing the model's fit using confirmatory factor analysis (CFA), linear regression was employed to look at the relationship between the variables. Mediation analysis based on bootstrapping approach was completed subsequently.

6 Results

6.1 Demographic profile and the variables

The demographic data collected is presented in Table 1, while Table 2 illustrates EE values across various demographic groups, with all three variables namely OSE, EE and OCB consistently above average. Notable trends include higher EE levels among employees aged 51–60 years ($\chi = 6.4$) and females ($\chi = 6.76$) compared to their counterparts. Nurses exhibited the highest EE levels ($\chi = 6.44$), whereas doctors reported the lowest ($\chi = 5.7$). Both doctors and nurses work under intense pressure, with doctors facing additional stress due to critical decision-making regarding patient health. Single employees ($\chi = 6.22$) and those with family support or full-time paid assistance ($\chi = 6.23$) demonstrated higher EE levels, whereas employees in nuclear families reported the lowest ($\chi = 5.91$). Employees with support systems tend to maintain a better work-life balance, leading to increased EE, while single employees often experience fewer household responsibilities, making work-life balance more manageable. Permanent employees ($\chi = 6.45$) and those with 3–5 years of tenure ($\chi = 6.42$) exhibited higher engagement than contractual employees ($\chi = 5.9$), who often face job security concerns that negatively impact their EE levels. Additionally, employees in private hospitals recorded the highest EE levels ($\chi = 6.84$). This may be because public sector employees must manage a high patient volume and navigate extensive bureaucratic processes, which significantly reduce their autonomy. These findings highlight the significant influence of demographic factors on EE.

6.2 Reliability

Following the recommendations of Hair et al. (2021) and Gliem and Gliem (2003), the scale's dependability was assessed using Cronbach's alpha. The results presented in Table 3 revealed reliability statistics ranging from 0.791 to 0.912, all exceeding the recommended threshold of 0.7, thus indicating a satisfactory level of internal consistency.

Table 1 Demographic information

Demographic variable	*Frequency*	*%*
Age		
18–30 years	80	28.5714
31–40 years	90	32.1429
41–50 years	60	21.4286
51–60 years	50	17.8571
Gender		
Male	135	64.9038
Female	145	69.7115
Qualification		
Post-graduation	90	32.1429
Graduation	130	46.4286
Diploma	60	21.4286
Occupation		
Doctor	80	28.5714
Nurse	80	28.5714
Management employee	70	25
Paramedical staff	50	17.8571
Marital status		
Married	150	53.5714
Single	130	46.4286
Family type		
Nuclear	80	28.5714
Nuclear with full time paid assistance	60	21.4286
Nuclear with part time assistance	60	21.4286
Family with parent's support	80	28.5714
Type of employment		
Permanent	150	53.5714
Contractual	130	
Tenure in current organisation		
0–2 years	80	28.5714
3–5 years	90	32.1429
6–10 years	70	25
11–15 years	20	7.14286
Above 15 years	20	7.14286
Type of organisation		
Public	120	42.8571
Private	160	57.1429

Table 2 EE, OCB and OSE values according to demographic variables

Demographic variable	*EE ($\mu = 4$)*	*OCB ($\mu = 4$)*	*OSE ($\mu = 3$)*
	MIN-1, MAX-7, $\chi = 4$	*MIN-1, MAX-7, $\chi = 4$*	*MIN-1, MAX-5, $\chi = 3$*
Age			
18–30 years	5.8	6.22	4
31–40 years	5.2	5.9	3.8
41–50 years	6.2	6.32	3.6
51–60 years	6.4	6.66	3.6
Gender			
Male	6.22	6.23	3.9
Female	6.76	6.11	3.86
Qualification			
Post-graduation	5.8	6.34	4
Graduation	6.12	6.33	3.7
Diploma	5.9	6.24	3.6
Occupation			
Doctor	5.7	6.28	4
Nurse	6.44	6	3.9
Management employee	6.11	6.14	3.8
Paramedical staff	6.11	6.21	3.5
Marital status			
Married	5.8	6.21	3.4
Single	6.22	6.84	3.8
Family type			
Nuclear	5.91	5.9	3.2
Nuclear with full time paid assistance	6.23	6.23	3.8
Nuclear with part time assistance	6.11	6.44	3.5
Family with parent's support	6.23	6.34	3.4
Type of employment			
Permanent	6.45	5.9	3.8
Contractual	5.9	5.9	3.6
Tenure in current organisation			
0–2 years	6.1	5.86	3.2
3–5 years	6.42	6.23	3.56
6–10 years	5.9	6.44	4
11–15 years	5.24	5.74	3.9
Above 15 years	5.23	5.9	3.4
Type of organisation			
Public	5.7	6.1	4
Private	6.84	6.84	3.9

Table 3 Reliability statistics: Cronbach alpha, AVE and CR

Construct	*Measures*	*Loading*	*Cronbach's alpha*	*AVE/CR*	*CR*
EE	Vigour	0.75	0.791	0.711	0.88
	Dedication	0.94			
	Absorption	0.83			
OSE	Effectiveness	0.64	0.806	0.555	0.828
	Confidence	0.99			
	Adaptability	0.67			
	Command	0.62			
OCB	Conscientiousness	0.99	0.912	0.805	0.97
	Courtesy	0.95			
	Altruism	0.73			

6.3 Common method bias test

Harman's single-factor analysis revealed that the first factor explained only 20.767% of the total variance, which is well below the critical threshold of 40% (Chang et al., 2010). This finding suggests that common method bias (CMB) did not substantially impact the research outcomes.

6.4 Confirmatory factor analysis

The study has employed CFA to validate the measurement model using SPSS AMOS for the design and testing of the structural equation model, as suggested by Byrne (2001). The dimension-level factor analysis investigated latent-manifest variable relationships, wherein each item within a measure was assigned to load on a particular component. As recommended by Ariani's (2013) findings the proposed factor model showed a satisfactory fit with the data. Items with factor loadings below 0.50 were eliminated, resulting in the removal of three OSE and two OCB items. All the items of EE were retained. The final analysis retained command, adaptability, and personal effectiveness for assessing OSE, and courtesy, civic virtue, and altruism for assessing OCB (please refer to Figure 3).

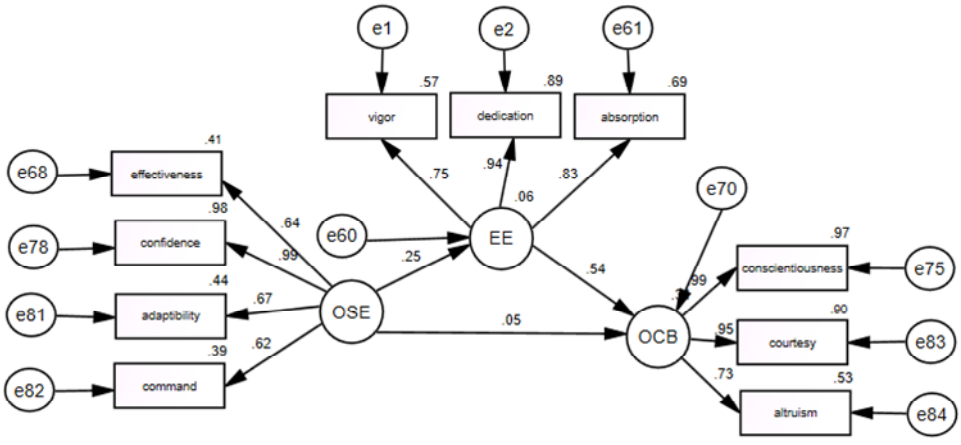
6.5 Measurement model

The measurement model refers to the relationship between observed indicators and their corresponding latent variables (Fornell and Larcker, 1981). This study adhered to the guidelines outlined by Hair et al. (2013a) to assess the model's validity, specifically focusing on convergent and discriminant validity.

Convergent validity (CV) measures the degree to which multiple indicators consistently represent a given construct (Hair et al., 2010). It ensures that individual indicators effectively reflect the latent variable (Urbach and Ahlemann, 2010). To evaluate CV, factor loadings, CR, and AVE were examined, following the recommendations of Hair et al. (2010, 2013a, 2023b). The accepted thresholds for these indicators are factor loadings > 0.5, AVE > 0.5, and CR > 0.7 to confirm sufficient CV.

As shown in Figure 2 and Table 1, the measurement model results exceeded the recommended thresholds outlined by Hair et al. (2010, 2013a, 2013b). Therefore, the study successfully established CV, confirming that the constructs were reliably measured.

Figure 3 Structural model displaying the variables finally selected for the study



Discriminant validity was tested using the Fornell and Larcker criterion. According to the Fornell and Larcker (1981) criterion, "the square root of AVE of each construct should be greater than the correlation with any other construct in the framework" [Rasoolimanesh, (2020), p.3]. Values of all the measures met this criterion, thus establishing discriminant validity (Hair et al., 2021) (please refer to Table 4).

Table 4 Fornell and Larcker statistics

	EE	*OCB*	*OSE*	*VIF*
EE	0.863			1.881
OCB	0.609	0.869		1.319
OSE	0.386	0.302	0.795	2.051

6.6 Goodness of fit indices

The confirmatory model suitability test was assessed using the goodness of fit index (GOFI), which evaluates how well the proposed model aligns with the observed data. According to Hair et al. (2013b), GOFIs is categorised into three types: absolute fit indices, which measure overall model fit; incremental fit indices, which compare the proposed model to a baseline model; and parsimony fit indices, which assess model fit while accounting for complexity. In this study, key indicators from each category were selected: RMSEA and GFI (0.06 and 0.92) represented absolute fit indices, TLI and CFI (0.96 and0.94) were used as incremental fit indices, and PGFI and PNFI (0.69 and 0.64) served as parsimony fit indices. These indices collectively provided a comprehensive evaluation of the model's goodness of fit and ensured its validity (please refer to Table 5).

Table 5 Goodness of fit indices

Fit index	*Goodness of fit*	*Criteria*	*Cut-off value*	*Description*
Absolute fit	RMSEA	≤0.08	0.06	Fit
	GFI	≥0.90	0.92	Fit
Incremental fit	TLI	≥0.90	0.96	Fit
	CFI	≥0.90	0.94	Fit
Parsimony fit	PGFI	≥0.60	0.69	Fit
	PNFI	≥0.60	0.64	Fit

6.7 Structural model

The structural model evaluation commenced with an analysis of collinearity among the predictor variables. As shown in Table 2, the results confirmed that collinearity was not a concern, as all VIF values remained below the acceptable threshold of 5 (Hair et al., 2013a, 2013b).

Table 6 Analysis of the relationships between variables using linear regression

	β	*T*	*p value*	*VIF*		*Decision*
OSE -> EE	0.339	5.998	0.012	1.823	H1	Accepted (OSE has a positive impact on EE)
EE -> OCB	0.546	10.879	0.021	1.745	H2	Accepted (EE has a positive impact on OCB)
OSE -> OCB	0.154	2.594	0.022	1.232	H3	Accepted (OSE has a direct impact on OCB)

To assess the predictive strength of the structural model, the coefficient of determination (R^2) was examined, representing the proportion of variance explained by the IVs (Barclay et al., 1995). According to Chin (1998), R^2 values of 0.67, 0.33, and 0.19 are classified as strong, moderate, and weak, respectively. Regression analysis in SPSS revealed that EE and OCB had R^2 values of 0.333 and 0.371, respectively, indicating a moderate explanatory strength of the model.

To further validate the structural model, a bootstrapping technique with 5,000 resamples was utilised to determine t-statistics and path coefficients. The findings revealed:

- A statistically significant positive relationship between EE and OSE ($r = 0.339$, $p < 0.05$), supporting H1, though the correlation coefficient was slightly below the mean.
- EE demonstrated a significant and moderate association with OCB ($r = 0.546$, $p < 0.05$), confirming H2.
- The relationship between OSE and OCB was also significant, albeit with a moderate effect size ($r = 0.156$, $p < 0.05$), lending support to H3 (Table 6).

Overall, these findings affirm the hypothesised relationships, reinforcing the model's validity and predictive relevance in understanding the interplay between EE, OSE and OCB.

6.8 Analysis of EE as a MV

The results indicate that OSE-EE have a significant positive impact on OCB, both directly and indirectly. The direct effect of OSE-EE on OCB is 0.326, with a p-value of 0.012, confirming statistical significance. The confidence interval (0.331–0.428) further supports the reliability of this relationship. Additionally, the indirect effect, mediated by EE, is 0.206 and also statistically significant (p = 0.006), with a confidence interval of 0.15–0.26. Since both the direct and indirect effect is significant, EE partially mediated the relationship between OSE and OCB. And also, since both direct and indirect effect points towards the same direction, there exist complementary partial mediation. This suggests that fostering OSE and EE can directly enhance employees' willingness to go beyond their formal job roles while also influencing OCB through additional mediating mechanisms. Organisations should focus on strengthening these factors to cultivate a more engaged and proactive workforce (Table 7).

Table 7 Total mediation of EE on OSE and OCB relationship

	Direct effect	*p-value*	*Confidence interval (5%–95%)*	*Indirect effect*	*p-value*	*Confidence interval (5%–95%)*	*Result*	
OSE -> EE -> OCB	0.326	0	0.331–0.428	0.206	0	0.15-0.26	H4	Supported

7 Discussion

The study revealed a significant yet moderate impact of OSE on EE, consistent with previous research. Liu (2019) identified self-efficacy as a predictive factor for job engagement among MBA students, with similar findings in studies involving teaching professionals (Lipscomb et al., 2022; Musenze et al., 2021) and corporate leaders in India (Chaudhary et al., 2013). This correlation stems from self-efficacious individuals' tendency to experience positive emotions, fostering work interest and contentment (Salanova et al., 2010). Theoretical perspectives, like SCT, emphasise that self-efficacy beliefs drive motivated behaviours, leading to increased effort, perseverance, and dedication to tasks (Bayraktar and Jiménez, 2020). Significantly, Xanthopoulou et al. (2007) claimed that self-efficacy and other individual assets have a greater effect on the motivational process determining engagement than do resources from a work.

The study established a substantial link between OCB and EE, consistent with findings from Shams et al. (2020) and Putri et al. (2021). Highly engaged workers develop a profound attachment to their work, willingly redefining their roles and voluntarily embracing responsibilities that extend beyond their prescribed duties. This disposition demonstrates their deep commitment to the organisation, enabling them to pursue tasks that align with broader organisational objectives (Ariani, 2013; Faraz et al., 2021).

The study highlights a statistically significant correlation between OSE and OCB. Elevated self-efficacy levels drive individuals to exhibit behaviours aligned with organisational expectations and beyond. This perspective encourages individuals to not only fulfil core tasks but surpass them, contributing to organisational well-being beyond formal job descriptions. These findings are consistent with Na-Nan et al.'s (2021)

research in the automobile parts manufacturing sector, demonstrating that self-efficacy directly influences OCB, mediated by organisational commitment and job satisfaction.

Furthermore, the study supported the mediating role of EE, corroborating past research. EE was demonstrated to mediate the relationship between a variety of antecedents and outcomes. This was demonstrated in the study of Ali et al. (2020) in the Pakistani manufacturing sector and Kerdpitak and Jermsittiparsert (2020) among employees of Thai pharmaceutical companies. Similar research by Basheer et al. (2019) showcased that flexible working arrangements, spiritual intelligence, and emotional intelligence all contribute to EE, which in turn promotes employee loyalty.

The declining trend in EE in India, as highlighted by Gallup's 2024 report, underscores the critical relevance of this study. With only 14% of Indian employees feeling they are 'thriving' and 86% reporting struggles with workplace well-being (Gallup, 2024a, 2024b), it is evident that engagement levels are deteriorating. Furthermore, the drop in South Asia's engagement rate from 33% to 26%, along with growing concerns over toxic work culture, highlights an urgent need for organisations to focus on strategies that enhance employee motivation and commitment (Indian Startup News, 2024).

In this context, healthcare organisations in West Bengal – already operating under severe manpower shortages, resource constraints, and high-pressure conditions – must find alternative ways to sustain workforce morale and productivity. Given that traditional solutions like increasing manpower and infrastructure are difficult to implement in the short term, this study provides valuable insights into psychological and behavioural mechanisms that can boost EE and discretionary efforts, i.e., OCB even under extreme conditions. Thus, this study is not only theoretically significant but also highly relevant for addressing real-world workforce challenges, making it a crucial resource for shaping effective human resource policies, workplace engagement strategies, and employee well-being initiatives in healthcare and beyond.

8 Implications

8.1 Theoretical

This study extends SET to healthcare by examining the relationships between OSE, EE, and OCB. While SET has been widely used in engagement research across sectors (Saks, 2006; Shuck et al., 2017), its application in healthcare remains limited. Prior studies in healthcare have linked SET to engagement through supervisor-employee relationships (Brunetto et al., 2013; Trinchero et al., 2019), but none have integrated OSE as a key factor. This study fills that gap by investigating how OSE influences EE and OCB through the lens of SET, providing novel insights into employee motivation and behaviour in hospitals.

Similarly, this study extends self-efficacy theory to healthcare by examining the relationship between OSE and OCB, a link predominantly studied among academicians (Ariani, 2014; Putri et al., 2021). Prior research indicates that self-efficacy enhances OCB by fostering confidence and motivation, leading to discretionary workplace behaviours (Bandura, 1997). While studies in academic settings highlight this connection, research in healthcare remains scarce (Bernales-Turpo et al., 2022). Given the high-stress, resource-constrained nature of healthcare, this study fills a critical gap by applying

self-efficacy theory to explore how OSE influences OCB in healthcare professionals, providing novel insights into enhancing engagement and organisational effectiveness.

8.2 Practical

The study's findings highlight a positive relationship between OSE, OCB, and EE among hospital employees in West Bengal, despite extreme resource constraints. These insights can be valuable for HRD professionals, accreditation bodies, and government policymakers in designing strategies to improve EE, workplace efficiency, and healthcare service quality.

HRD professionals may leverage these findings to enhance employee self-efficacy and EE, as these factors contribute significantly to OCB, even in high-stress environments. Implementing structured training programs focused on skill development, leadership, and emotional resilience can help employees adapt to challenging work conditions. Additionally, recognition and reward systems that acknowledge extra-role behaviours can further encourage OCB. Offering mental health support, flexible work arrangements, and peer mentoring programs can also improve EE and retention in demanding healthcare settings (Javed et al., 2021; Haque et al., 2024)

Accreditation organisations, such as the National Accreditation Board for Hospitals & Healthcare Providers (NABH), can use these findings to refine hospital accreditation criteria, incorporating measures that assess how well healthcare institutions support employee self-efficacy and resilience. They could introduce mandatory employee well-being programs as part of quality assessments. Additionally, providing incentives for hospitals that foster high levels of EE – such as tax benefits, public recognition, or funding opportunities – could encourage organisations to prioritise employee development and well-being.

The government and policymakers can use this study to design workforce retention policies that ensure healthcare employees remain motivated despite resource constraints. Introducing financial and non-financial incentives, such as higher salaries, performance-based bonuses, and career progression opportunities, can encourage employees to stay engaged. The government can also invest in infrastructure improvements and digital health solutions to ease the workload on healthcare staff. Additionally, policies promoting work-life balance, stress management, and professional development programs can further strengthen EE and improve healthcare service delivery.

This study underscores the importance of self-efficacy and engagement in maintaining high levels of OCB in resource-constrained healthcare environments. By integrating HRD strategies, accreditation incentives, and government-backed policies, healthcare organisations can create a more sustainable, motivated, and engaged workforce. These managerial implications provide a framework for improving both employee well-being and overall healthcare service quality, even in challenging work conditions.

9 Limitations and scope of future research

To strengthen the study, it is essential to address its limitations and provide directions for future research. This study limits itself to employees who hold low and middle level positions in the organisational structure. Unfortunately, the researcher encountered

impediments preventing access to personnel occupying more senior managerial positions. While the study focuses on engagement, self-efficacy, and OCB, other relevant factors like job satisfaction, stress levels, or organisational climate were not considered, which might provide more comprehensive understanding.

A key limitation is generalisability, as the study focuses on healthcare employees in West Bengal, which may not fully represent other regions or industries. Future research could expand the study across different geographical areas and healthcare settings to validate the findings in diverse contexts. Additionally, the study does not explore the long-term effects of OSE on EE and OCB. Longitudinal studies could help assess how these relationships evolve over time and identify potential shifts in engagement levels.

Another limitation is the cross-sectional design, which restricts the ability to establish causal relationships. Future research could adopt experimental or longitudinal methods to better understand the direction of influence between OSE, EE, and OCB. Furthermore, external factors such as organisational culture, leadership styles, and healthcare policies were not deeply explored in this study but could significantly impact engagement levels. Future research could integrate these variables to provide a more comprehensive understanding of EE in healthcare organisations. In the future, both qualitative and quantitative studies could be conducted for an in-depth analysis of variations in EE levels based on demographic factors or sector of work. Despite these limitations, the study provides valuable insights that can guide HR practices and employee development strategies in the healthcare sector.

10 Conclusions

This inquiry extends the tenets of SET and self-efficacy theory by scrutinising the interplay among OSE, EE, and OCB. A notable finding is the identification of a clear link between OSE and EE in the healthcare sector – a relationship that has been largely overlooked in prior research. This sheds new light on the complex interplay between an individual's confidence in their job performance and its influence on engagement. Previous studies on OSE and EE have predominantly focused on the education sector, making this study in healthcare domain particularly novel. A distinctive facet of this research lies in its delineation of the mediating role played by EE in the intricate web connecting OSE and OCB, positing that the influence of the former on the latter is, in part, mediated by the extent of engagement of the workforce. The geographical purview is confined to hospitals within the West Bengal region, affording a localised lens to the study's findings.

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