Journal of Infrastructure, Policy and Development 2025, 9(1), 9466.
https://doi.org/10.24294/jipd9466

Article

Nexus among employee engagement, management support, and knowledge sharing behavior: Evidence from an emerging economy

Md. Atikur Rahaman[1], Mohammad Bin Amin[2,*], Prianka Tewary[3,*], Mohammed Julfikar Ali[4], Emmanuel Jeffrey Dzage[2], László Erdey[5]

[1] School of Economics and Management, Jiujiang University, Jiujiang 332005, China
[2] Doctoral School of Management and Business, Faculty of Economics and Business, University of Debrecen, 4032 Debrecen, Hungary
[3] Department of Business Administration, University of Scholars, Dhaka 1213, Bangladesh
[4] Department of Business Administration, Presidency University, Dhaka 1212, Bangladesh
[5] Faculty of Economics and Business, University of Debrecen, 4032 Debrecen, Hungary
*** Corresponding authors:** Mohammad Bin Amin, binamindu@gmail.com; Prianka Tewary, tazrinpriyankaa@gmail.com

CITATION

Rahaman MA, Amin MB, Tewary P, et al. (2025). Nexus among employee engagement, management support, and knowledge sharing behavior: Evidence from an emerging economy. Journal of Infrastructure, Policy and Development. 9(1): 9466. https://doi.org/10.24294/jipd9466

ARTICLE INFO

Received: 5 October 2024
Accepted: 11 November 2024
Available online: 9 January 2025

Abstract: The aim of this study is to examine the contributions of the components of employee engagement on knowledge-sharing behavior alongside possible mediating effect of management support. This study collected data from 395 respondents purposively selected from pharmaceutical organizations in Bangladesh. For input and incorporation of sample data, SPSS version 26 was used, whereas the PLS-SEM (version-4) tool was used to test the hypotheses relationships. The findings reveal significant positive effects of adaptation, devotion, and vitality on both knowledge sharing behavior and management support. Adaptation to new technologies and processes enhances employees' ability and intention to share knowledge, facilitated by robust management support. Similarly, devotion and vitality among employees fosters a supportive environment that is conducive for knowledge exchange. Management support emerges as a critical mediator, amplifying the positive impacts of adaptation, devotion, and vitality on organizational outcomes. These findings address a critical gap in understanding the conditions that enhance knowledge-sharing behaviors in highly regulated industries and provides a valuable framework for organizations to nurture knowledge-sharing cultures that will drive innovation and resilience within emerging markets.

Keywords: workplace knowledge management; adaptation; devotion; vitality; organizational behavior; emerging economy; pharmaceutical industry; Bangladesh

1. Introduction

In the contemporary business environment, knowledge sharing has emerged as a pivotal practice that significantly contributes to organizational success and innovation (Zaremohzzabieh and Rasdi, 2023). As organizations strive to maintain a competitive edge, the effective dissemination and utilization of knowledge among employees become critical. Employee engagement, characterized by the commitment, enthusiasm, and energy that employees bring to their work, plays a crucial role in fostering a conducive environment for knowledge sharing (Prayoga et al., 2023; Rahaman et al., 2023). Additionally, the support provided by management is often a determining factor in the extent to which knowledge is effectively shared within an organization. Despite the growing recognition of the importance of knowledge sharing within organizations, there remains a significant gap in understanding the specific factors that influence this behavior, particularly in the context of highly regulated industries in emerging economies. Employee engagement encompass elements such as devotion, adaptation,

and vitality, and is widely acknowledged as a key driver of various positive organizational outcomes. However, its direct impact and potential on knowledge sharing behavior (KSB) remains underexplored (Nawaz et al., 2024). Additionally, the role of management support as a mediating factor in this relationship has not been thoroughly studied. The pharmaceutical sector, characterized by its rapid innovation cycles and critical dependence on effective knowledge management, faces unique challenges that necessitate a deeper investigation into the dynamics of knowledge sharing (Yuen and Lam, 2024). In this sector, the ability to share knowledge efficiently can lead to advancements in research and development, operational improvements, and enhanced overall performance (Yumhi et al., 2024; Islam et al., 2023; Zhang et al., 2022). However, the mechanisms through which employee engagement influences knowledge sharing, and the extent to which management support can facilitate this process, remain unclear (Liu et al., 2022).

While existing literature provides substantial insights into the individual aspects of adaptation, devotion, vitality, management support, and knowledge sharing behavior, several critical gaps remain unexplored, particularly in the context of the pharmaceutical sector in emerging economies (Zighan et al., 2022; Bhatti et al., 2022; Montani and Staglianò, 2022). Previous studies have extensively examined the role of adaptation to technology and organizational changes (Chowdhury et al., 2024; Hanafizadeh et al., 2023; Işık et al., 2024; Qing et al., 2023), but there is limited research on how these adaptation processes specifically influence knowledge sharing behavior within highly regulated and knowledge-intensive industries like pharmaceuticals. Moreover, while devotion, characterized by loyalty and trust, has been recognized as crucial for employee retention and psychological commitment (Alshamrani et al., 2023; Kostina, 2022; Ryan, 2021; Qureshi et al., 2021), its direct impact on knowledge sharing behavior and management support has not been thoroughly investigated. Vitality, encompassing psychological, emotional, and physical well-being, has been linked to positive functioning at work (Bălăceanu and Vîrgă, 2022; Shapiro and Donaldson, 2022), but its specific influence on knowledge sharing behavior and how it interacts with management support to enhance organizational outcomes elicited further investigation (Osman et al., 2022). Additionally, while the importance of management support in fostering organizational resilience and project success is well-documented (Gichuhi et al., 2023; Mustafi et al., 2024; Yusuf et al., 2022), there is a paucity of research on its mediating role between adaptation, devotion, vitality, and knowledge sharing behavior, particularly within the context of organizations operating in the so-called emerging economic regions (Rezaei et al., 2022; Azeem et al., 2021). While the majority of existing studies have focused on developed economies, leaving a significant research gap in understanding these dynamics within the context of emerging economies where organizational structures, cultural dynamics, and resource availability differ considerably, this study aims to address these gaps by providing a comprehensive analysis of how adaptation, devotion, and vitality impact knowledge sharing behavior through the mediating role of management support. This will contribute to a deeper understanding of the interplay between these critical variables and provide actionable insights for enhancing organizational practices in similar contexts by addressing the following research questions:

RQ1: How do the components of employee engagement—adaptation, devotion and vitality—directly influence knowledge-sharing behavior?

RQ2: To what extent does management support mediate the relationship between employee engagement and knowledge-sharing behavior?

RQ3: How does management support enhance knowledge-sharing behavior in improving organizational practices in an emerging economy?

2. Literature review

2.1. Theoretical foundation

Inasmuch as new empirical studies frequently rely on established theories to formulate their hypotheses, Colquitt and Zapata-Phelan (2007) underscore the necessity of basing hypotheses on existing theories or well-established models. In the field of technology adoption and use, several theories provide valuable insights. Im et al. (2011) for instance identified two significant theories: the Theory of Reasoned Action (TRA) introduced by Fishbein and Ajzen (1975) and the Theory of Planned Behavior (TPB) proposed by Ajzen (1991). According to TRA, behavior is primarily influenced by behavioral intention, which in turn is affected by attitude and subjective norms. TPB expands on TRA by adding perceived behavioral control as an additional determinant. By examining the factors that influence behavioral intentions, TPB and TRA aim to predict and understand human behavior and thus, constitute the theoretical grounds on which this study's framework is built.

Increasingly being recognised as a critical driver of organizational success, employee engagement is operationalised in this study through three core dimensions—adaptation, devotion and vitality (Bai and Liu, 2018; Memon, 2018). Each of these components represent unique dimensions of how employees interact with each other to contribute to their organizational environment and in influencing knowledge-sharing behaviors. Adaptation within an organization is crucial for its success and sustainability, encompassing various aspects such as individual behaviors, human resource management practices, and professional development programs. Adaptation is conceptualised in this context to refer to the employee's ability to embrace change including new technologies, operational processes and work environments. Drawing from the TPB (Ajzen, 1991), adaptation may be understood as a behavior influenced by the employees' level of perceived behavioral control (PBC). Within the context of knowledge-sharing behavior thus, employees who adapt well enough are more likely to share their knowledge with others as with their mastery, they become more comfortable to share their experiences with the tools and systems that facilitate knowledge dissemination (Gogashvili, 2023; Hanafizadeh et al., 2023). Further, human resource management (HRM) plays a vital role in organizational adaptation, focusing on adaptation-oriented practices and self-organization to foster exploration and innovation within the firm (Kim and Choi, 2022; Petrenko, 2021).) Some previous studies have proposed models such as L. Greiner's Model of Organizational Change and Duck's Change Curve Model to optimize processes for strategic adaptation within the safety-oriented management framework (Havlovska et al., 2020).

Devotion in an organization encompasses elements like loyalty, trust, and professional constancy, which are crucial for sustainable functioning and staff

retention. Rooted in the social exchange theory (Blau, 1964), devotion reflects the psychological contract between employees and their organizations where committed employees reciprocate support by engaging in prosocial behaviors like knowledge-sharing. The characteristics of employee devotion have been found to include commitment, love, loyalty and trust (Karim et al., 2023; Kostina, 2022; Park, 2015; Ryan, 2021; Shahneaz et al., 2020).

Vitality (also called 'vigor' in some literature) embodies employees' enthusiasm, energy and psychological well-being at work (Jaya and Ariyanto, 2021; Maisyuri and Ariyanto, 2021; Azeez, 2021). It is a crucial element in an organization strives towards achieving sustainable performance at work, as it influences employee well-being and engagement (Al Amin et al., 2024a; Gazi et al., 2024a). According to the Job Demands-Resources (JD-R) theory by Bakker and Demerouti (2017), vitality is an important energetic resource that enhances employee engagement and by extension, their knowledge-sharing behaviors. Employees with high vitality are more proactive and motivated to engage in knowledge-sharing behaviors and in turn, contribute to a collaborative work environment (Al Amin et al., 2024b).

Leaders play a significant role in fostering vitality among their teams by maintaining their own vitality (Dunlop and Scheepers, 2023; Lopez-Zafra et al., 2022; Kandil and Moustafa, 2021). Shapiro and Donaldson (2022) introduced a new, three-factor scale that combines psychological, emotional, and physical elements to assess leader vitality. The Leader Vitality Scale (LVS) was developed and scientifically measures overall vitality as a higher-order element in a hierarchical structure. Vitality has been found to have substantial correlations with psychological capital, positive emotions, positive functioning at work, and life satisfaction (Rahman et al., 2024). Further, according to Bălăceanu and Vîrgă (2022), employers can support staff members' work vitality in learning and using various technological innovations based on their own preferences. Vitality: the feeling of having energy available to oneself, is crucial for job performance and stress reduction (Yao et al., 2021; Hakanen et al., 2019). Tummers et al. (2016) applied a "positive psychology" perspective to public administration, analyzing the relationship between two job characteristics—leader's task communication and job autonomy—and vitality. They found a positive relationship between these factors and employee vitality, suggesting that public organizations can enhance employee vitality by increasing task communication from leaders and providing greater job autonomy (Hosain et al., 2024). In another similar research, Wörtler et al. (2020) also found that employees who exhibit proactive behavior at work are more likely to have reduced personal fears of invalidity (PFI). On the other hand, Mahmud et al. (2023) revealed that observed proactive behavior was not always linked to a sense of energy at work. Instead, workers who feel more vital are less likely to fear the risks and negative outcomes of making mistakes, which increases their likelihood of being proactive within the company (George et al., 2021; Saira et al., 2021: Bryant and Merritt, 2021).

Management support long been identified as a crucial factor in enhancing various employee-related behaviors including engagement and knowledge-sharing (Donate and Guadamillas, 2011; Lin, 2007) as well as desirable organizational outcomes such as organizational resilience, performance, and project success (Islam et al., 2024). Based on Eisenberger et al.'s (1990) Social Exchange Theory (SET), perceived

support from management creates a reciprocal environment where employees feel valued and empowered to contribute positively to organizational goals. Previous, research shows that management support significantly impacts organizational resilience, such as in telecommunication companies (Gichuhi et al., 2023). Additionally, organizational support acts as a moderator, amplifying the effect of organizational commitment on management performance (Yusuf et al., 2022). Effective support from senior executives can facilitate risk mitigation in high-risk projects, leading to higher project success (Sadeh et al., 2022). The concept of perceived organizational support, which includes perceived justice, HRM practices, and employee-manager relationships, is vital for employee well-being and organizational success. This highlights the importance of managers showing support to employees to foster reciprocity and positive efforts (Kurniawan and Harsono, 2021).

Knowledge sharing behavior in an organization is vital for fostering innovation and achieving organizational success (Mollah et al., 2024). Knowledge-sharing behavior is defined within this study's context as a voluntary exchange of knowledge, skills and expertise among employees which is essential for organizational learning and innovation. Drawing its origin from Bandura's (2001) Social Cognitive Theory (SCT), knowledge-sharing is influenced by both personal and environmental factors. Studies have identified factors such as organizational support, social interaction ties, knowledge self-efficacy, and reciprocal benefit as significant influencers of knowledge sharing behavior. Further, organizational support and social interaction links have been found to be the strongest predictors of employees' knowledge sharing behavior (Zaremohzzabieh and Rasdi 2023). Other important predictors include reciprocal benefit, organizational expectancy, social interaction ties, organizational commitment, and knowledge self-efficacy. Within an organization, knowledge sharing involves transferring information crucial for success, including aspects like advancement, learning, development, study, efficacy, and replacing outdated practices with improved ones. Effective knowledge utilization is common in industrialized nations and has a significant impact on enterprises, organizations, nations, and society at large. There is not only a positive and significant relationship between innovative activity and knowledge-sharing behavior (Tokal, 2023), it was also found to correlate positively with innovative work behavior and knowledge sharing activity (Rahnjen et al., 2023). Knowledge sharing behavior also had a stronger impact on innovative work behavior in SMEs with a culture of innovativeness, affiliation, and a supportive work environment (Rahnjen et al., 2023). According to Prayoga et al. (2023), knowledge sharing iscrucial for developing human resources and enhancing the creative actions of employees and incontributing to overall organizational success.

2.2. Formulation of hypotheses

Employee engagement, management support, and knowledge sharing behavior are interrelated and crucial for organizational success, especially in the pharmaceutical sector of emerging economies. Colquitt and Zapata-Phelan (2007) emphasize the importance of grounding hypotheses in established theories. Theories such as the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) provide insights into how behavioral intentions influence actions, highlighting the need for

organizational adaptation to technology (Im et al., 2011). Adaptation within organizations, influenced by technology experience and personality traits, is essential for success and sustainability (Gogashvili, 2023; Hanafizadeh et al., 2023; Hasan et al., 2023). Human resource management (HRM) practices play a vital role in fostering innovation and adaptation within firms (Kim and Choi, 2022). Studies on employee devotion and trust underscore the significance of loyalty and professional consistency for staff retention (Kostina, 2022; Ryan, 2021). Cultural beliefs and work devotion schemas impact employees' perceptions of work demands and gender disparities in flexibility (Blair-Loy and Cech, 2016). Leadership plays a crucial role in fostering vitality, which is essential for employee well-being and engagement (Bălăceanu and Vîrgă, 2022; Shapiro and Donaldson, 2022). Management support enhances organizational resilience and project success, highlighting the importance of perceived organizational support for employee well-being (Gichuhi et al., 2023; Kurniawan and Harsono, 2021; Sadeh et al., 2022; Yusuf et al., 2022;). Knowledge sharing behavior, driven by factors like organizational support and social interaction ties, is critical for innovation and organizational success (Zaremohzzabieh and Rasdi, 2023). Studies show that knowledge sharing positively impacts innovative behavior in both academic and SME contexts, emphasizing the need for supportive environments to maximize benefits (Prayoga et al., 2023; Rahnjen et al., 2023; Tokal, 2023). Based on the previous studies, this research proposes the following hypothesis:

H1: There is a significant effect of adaptation on knowledge sharing behavior.

Adaptation within an organization involves adjusting to new technologies, processes, and work environments, which can significantly influence knowledge sharing behavior (Azeem et al., 2021; Singh et al., 2021; 26. Wang and Hu, 2020). Employees who effectively adapt to organizational changes are more likely to share their knowledge as they become proficient with new tools and systems. This behavior aligns with the Theory of Planned Behavior (TPB), where perceived behavioral control (in this case, the ability to adapt) impacts the intention to perform a specific behavior (knowledge sharing). Hanafizadeh et al. (2023) highlight that individual adaptation to enterprise IT, influenced by technology experience and IT knowledge, can enhance the sharing of knowledge within the organization.

H2: There is a significant effect of adaptation on management support.

Effective adaptation within an organization requires robust management support. Leaders play a critical role in facilitating adaptation by providing the necessary resources, training, and encouragement (Tamsah et al., 2021; Arif and Akram, 2018). This support helps employees navigate changes and enhances their confidence in adapting to new environments. As Gogashvili (2023) suggests, understanding company development theory and practices, including adaptation mechanisms, is crucial for effective management. Therefore, management support is both a facilitator and a result of successful adaptation processes.

H3: There is a significant effect of devotion on knowledge sharing behavior.

Devotion in an organization, characterized by loyalty, trust, and commitment, fosters a collaborative environment where knowledge sharing becomes a natural behavior (Unaam et al., 2021). Employees who are devoted to their organization are more likely to engage in behaviors that benefit the collective, such as sharing valuable knowledge. Kostina (2022) underscores that trust and loyalty are central to

psychological programs aimed at enhancing employee retention, which implicitly supports knowledge sharing as a collaborative effort to improve organizational outcomes.

H4: There is a significant effect of devotion on management support.

Devoted employees often perceive and receive greater management support. When employees demonstrate loyalty and commitment, managers are more inclined to provide support, recognizing the mutual benefits of nurturing devoted staff (Adikoeswanto et al., 2020). Ryan (2021) discusses how devotion manifests in relationships, including those between employees and managers, suggesting that a devoted workforce can strengthen the support systems provided by management.

H5: There is a significant effect of management support on knowledge sharing behavior.

Management support is crucial for promoting knowledge sharing behavior among employees. Supportive management practices, such as providing access to resources, facilitating communication, and recognizing contributions, create an environment conducive to knowledge exchange. Gichuhi et al. (2023) and Yusuf et al. (2022) highlight the significant impact of management support on organizational resilience and performance, which includes fostering a culture of knowledge sharing.

H6: There is a significant effect of vitality on knowledge sharing behavior.

Vitality, defined as the feeling of having energy and enthusiasm available, significantly influences knowledge sharing behavior. Employees who feel vital are more likely to engage actively in sharing knowledge as they are more energetic and motivated to contribute to the organization's success. Shapiro and Donaldson (2022) demonstrate that leader vitality positively correlates with positive functioning at work, which can be extended to imply that overall employee vitality enhances collaborative behaviors like knowledge sharing.

H7: There is a significant effect of vitality on management support.

Vitality among employees and leaders enhances the quality of management support. Vital leaders are more capable of providing the necessary support and fostering a positive work environment. Bălăceanu and Vîrgă (2022) show that interventions aimed at managing vitality can reduce work-related stress, suggesting that vital employees are better supported by management, leading to a healthier and more supportive work environment overall.

H8a: There is a significant indirect effect of vitality on knowledge sharing behavior through management support.

Vitality among employees positively influences management support, which in turn enhances knowledge sharing behavior. Vital employees and leaders create a dynamic and energetic environment that encourages management to provide robust support, thereby facilitating knowledge sharing.

H8b: There is a significant indirect effect of adaptation on knowledge sharing behavior through management support.

Adaptation within an organization positively affects management support, which subsequently enhances knowledge sharing behavior. Effective adaptation processes, supported by management, ensure that employees are well-equipped and motivated to share knowledge.

H8c: There is a significant indirect effect of devotion on knowledge sharing behavior through management support.

Devotion within an organization positively impacts management support, which in turn enhances knowledge sharing behavior. Devoted employees, who exhibit high levels of loyalty and commitment, receive strong support from management, fostering an environment conducive to knowledge sharing.

These hypotheses are built on established theories and empirical findings, providing a comprehensive framework to explore the relationships among adaptation, devotion, vitality, management support, and knowledge sharing behavior in the pharmaceutical sector of an emerging economy. The research model depicted in **Figure 1** was formulated by the researchers based on these hypotheses and serves as a conceptual framework for the study.

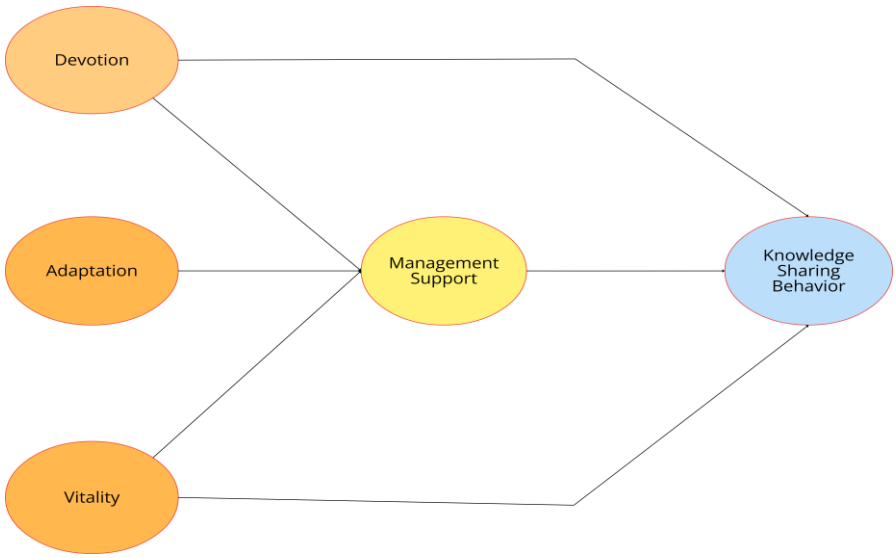

Figure 1. Research model showing variable relationships.

2.3. Research framework

Based on the above literature support, present research objective and addressing current research questions, the following framework has been proposed in this study:

3. Methods

3.1. Measurement

The construction of measurement scales in this study was informed by previous research in the field for all the variables. Specifically, established scales and frameworks were utilized to ensure the validity and reliability of the measurements. The variables include adaptation, devotion, vitality, management support, and knowledge sharing behavior. Each scale was selected based on its proven effectiveness in prior studies, ensuring that the constructs were accurately represented and measured. Adaptation was measured using scales developed to assess individual behaviors and attitudes towards technology adoption, drawing on works such as Hanafizadeh et al. (2023). Devotion and vitality were assessed using established psychological and organizational behavior scales, incorporating insights from studies like those by

Kostina (2022) and Shapiro and Donaldson (2022). Management support was measured based on frameworks that evaluate organizational and managerial practices supporting employee well-being and performance, as highlighted by Gichuhi et al. (2023). Knowledge sharing behavior was assessed using scales from research focusing on social interaction ties, organizational support, and individual knowledge self-efficacy, informed by the work of Zaremohzzabieh and Rasdi (2023). By leveraging these well-established measurement scales, the study ensures robust and credible data collection and analysis.

3.2. Sample characteristics

Table 1 provides a comprehensive overview of the demographic characteristics of the respondents and the firms they represent. The majority of the respondents are male, comprising 66% of the sample, while females account for 34%. The age distribution shows that the largest age group is 25–34 years, making up 53% of the respondents, followed by the 35–44 years age group at 23%, those below 25 years at 11%, the 45–54 years age group at 8%, and those 55 years or older at 5%. In terms of educational qualifications, nearly half of the respondents hold a bachelor's degree (49%), followed by those with a master's degree (31%), a doctorate or higher (11%), college education (7%), and high school education (2%). Job experience among respondents varies, with 35% having less than 2 years of experience, 28% having 2–5 years, 24% with 5–10 years, and 12% with over 10 years of experience. This detailed demographic profile as summairsed in **Table 1** highlights the diversity in the respondents' backgrounds, which is essential for understanding the study's context and ensuring the generalizability of its findings.

Table 1. Characteristics of respondents and firms.

Variables	Categories	Frequency	Percentage
Gender	Male	262	66%
	Female	133	34%
Age	Below 25 years	43	11%
	25–34 years	208	53%
	35–44 years	90	23%
	45–54 years	33	8%
	55 years or more	21	5%
Educational Qualification	High school	9	2%
	College	29	7%
	Bachelor's degree	192	49%
	Master's degree	121	31%
	Doctorate or higher	44	11%
Job Experience	Below 2 years	140	35%
	2–5 years	112	28%
	5–10 years	94	24%
	10 years or above	49	12%

Source: Field data, 2024.

3.3. Sample size

The study utilized in-person data collection techniques to gather 395 responses from the Dhaka divisions of Bangladesh, where most pharmaceutical organizations are located. The choice of the Dhaka region in Bangladesh for the research setting is informed by the significant relevance of the pharmaceutical sector within its emerging economic context where the industry continues to face unique challenges that require effective knowledge management of innovation cycles and adherence to regulatory standards. The choice of Bangladesh also resonates with the study's aim to contribute to insights of organizational dynamics from South-Eastern Asia—a region with quite unique cultural and economic perspectives but which has largely been underrepresented in the discourse around knowledge-sharing behaviors. According to Kline (2023), a minimum of 100 observations is required for structural equation modeling (SEM), and 200 are needed for reliable estimations. The sample size in this study exceeds both of these requirements, ensuring robust and reliable results.

3.4. Data collection procedure

This study employed a robust data collection methodology through face-to-face surveys conducted across multiple pharmaceutical organizations in Dhaka, Bangladesh. Trained interviewers administered the surveys in person, ensuring consistency in data collection procedures. The sampling approach aimed to achieve a diverse and representative sample from these organizations, capturing a wide range of respondent backgrounds and experiences. Furthermore, the in-person survey method facilitated detailed clarifications and deeper insights into respondents' viewpoints, enriching the depth and quality of the acquired data. This direct interaction also fostered trust and rapport with respondents, potentially enhancing response rates and ensuring the accuracy of the collected information. Overall, conducting face-to-face surveys across various pharmaceutical organizations in Bangladesh enabled the study to comprehensively explore the phenomena of interest while upholding ethical standards and maintaining the reliability and validity of the data. Employees who agreed to participate in this study were chosen at random. We have distribute 500 questionnaire, among those, 406 returned. But, after removing the incomplete, invalid, and missing data, in total 395 samples have been validated for this study. We removed the remaining questionnaires due to their anomalies. As a result, the final response rate in this study was 79% which was acceptable. Because previously Karim et al. (2024) achieved 78% response rate; Yu et al. (2024) 77.6%, Ullah et al. (2024) 75%; and Kassim et al. (2024) 67% response rate in context of Bangladesh.

4. Data analysis and results

4.1. Measurement model

The primary stage of structural equation modeling (SEM) entails the development of a measurement model, which establishes a robust linkage between measurement items and their respective latent variables, thereby ensuring the model's validity and reliability. This section will provide an in-depth exploration of the theoretical underpinnings and statistical techniques essential for validating and

affirming the reliability of the measurement model. The analysis will be executed utilizing SPSS software, with specific emphasis placed on the utilization of the SmartPLS package for comprehensive data analysis. The SmartPLS tool was prefered due to its variance-based approach to SEM (Tenenhaus, 2008), strong advantages in distributional assumptions (Dijkstra and Henseler, 2015a), usefulness in estimating models with large numbers of latent variables and indicators (Chin et al., 2008) and its ability to estimate both composites and factors (Henseler et al., 2016).

4.1.1. Operationalization of latent variables

Within the conceptual framework, five latent variables have been incorporated, each of considerable complexity, necessitating a multi-dimensional approach for comprehensive understanding, as illustrated in **Figure 1**. Consequently, a significant array of observed items has been employed to gauge each latent variable within the conceptual model. The detailed inventory of measurement items, along with their corresponding reliability assessments, is meticulously outlined in **Table 2**.

Table 2. Measurement items and their reliability.

Construct	Item Code	Item Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha (CA)
Adaptation	AD1	0.806	0.920	0.674	0.919
	AD2	0.852			
	AD3	0.850			
	AD4	0.820			
	AD5	0.840			
	AD6	0.833			
	AD7	0.740			
Devotion	DE1	0.892	0.936	0.720	0.935
	DE2	0.876			
	DE3	0.866			
	DE4	0.812			
	DE5	0.852			
	DE6	0.857			
	DE7	0.781			
Knowledge Sharing Behavior	KSB1	0.780	0.858	0578	0.855
	KSB2	0.759			
	KSB3	0.782			
	KSB4	0.746			
	KSB5	0.750			
	KSB6	0.745			

Table 2. (*Continued*).

Construct	Item Code	Item Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha (CA)
Management Support	MS1	0.840	0.934	0.715	0.933
	MS2	0.848			
	MS3	0.844			
	MS4	0.856			
	MS5	0.831			
	MS6	0.845			
	MS7	0.854			
Vitality	VIT1	0.849	0.917	0.701	0.915
	VIT2	0.831			
	VIT3	0.836			
	VIT4	0.802			
	VIT5	0.847			
	VIT6	0.858			

Source: Field data, 2024.

Model-fit: *R*-square of KSB = (0.705) and adjusted R-square of KSB = (0.703), R-square of MS = (0.799) and adjusted R-square of MS = (0.798), NFI = 0.722, SRMR = 0.064; d_ULS = 2.330, d_G = 2.282, Chi-square = 4102.747.

4.1.2. Normality check

The skewness and kurtosis test serves as a statistical tool to determine whether a given sample originates from a population that follows a normal distribution. In this particular case, the obtained *p*-value (Prob > x_2 = 0.0000) is found to be smaller than the predetermined significance level of 0.05. This indicates that the sample diverges from a normal distribution, thereby violating the assumption of normalcy. Consequently, caution should be exercised in conducting any subsequent statistical analyses reliant on the assumption of multivariate normality.

Despite the non-normal distribution observed in the data, the decision was made to proceed with the structural equation modeling (SEM) approach. This choice is informed by SEM's capacity to accommodate diverse data types and distributions, a characteristic highlighted by Kline (2023), thereby ensuring the flexibility and robustness of the analytical framework.

4.2. Descriptive analysis

4.2.1. Common method bias

To mitigate common method bias (CMB), this study employed both the Harman single factor test and the full collinearity test. The Harman single factor test, widely recognized for its simplicity and efficacy in detecting CMB (Podsakoff et al., 2003), was selected due to its extensive usage in prior research. Additionally, the full collinearity test was utilized, as it is known for its robustness in identifying CMB, particularly within the context of Partial Least Squares Structural Equation Modeling (PLS-SEM) (Kock, 2015). Through this test, the authors determined that the Variance Inflation Factor (VIF) values for all latent constructs remained below 4. This

observation indicates that CMB did not significantly distort the model, as VIF values below 4 suggest minimal collinearity issues (Kock, 2015). Moreover, based on the results in Appendix section, **Table A1** indicates that the un-rotated single latent component accounts for less than 50% of the observed variance, specifically 27.38%. Therefore, it can be claimed that the CMB is not a problem within the framework of our study.

4.2.2. Measurement model evaluation

To evaluate the convergent and discriminant validity of five constructs—adaptation, devotion, knowledge sharing behavior, management support, and vitality—this study conducted confirmatory factor analysis (CFA). These constructs were considered reflective, given their satisfactory composite reliability (> 0.800) and significant inter-item correlations (> 0.5).

The findings, as presented in **Table 2**, reveal robust outcomes from the Confirmatory Factor Analysis (CFA), with composite reliability values surpassing the recommended threshold of 0.7 (Bappy et al., 2020; Hair et al., 2016). Additionally, the Average Variance Extracted (AVE) for all latent constructs exceeded the accepted cutoff of 0.5, while item loadings consistently surpassed 0.75, indicating strong convergent validity (Hair, Babin, et al., 2019; Hair, Risher, et al., 2019).

The measurement model demonstrates satisfactory fit across various indices. Particularly, the R^2 and adjusted R^2 values for KSB (0.705, 0.703) and MS (0.799, 0.798) signify substantial explanatory power. Furthermore, the NFI (0.722) surpasses the threshold for good fit, as proposed by Bentler and Bonett (1980), with values closer to 1 indicating superior fit. Similarly, the SRMR (0.064) falls below the recommended cutoff of 0.08, affirming model adequacy per L. Hu and Bentler (1999). These collective findings substantiate the model's fidelity to the data. Moreover, **Figure 2** visually represents the structural equation model utilized in this investigation

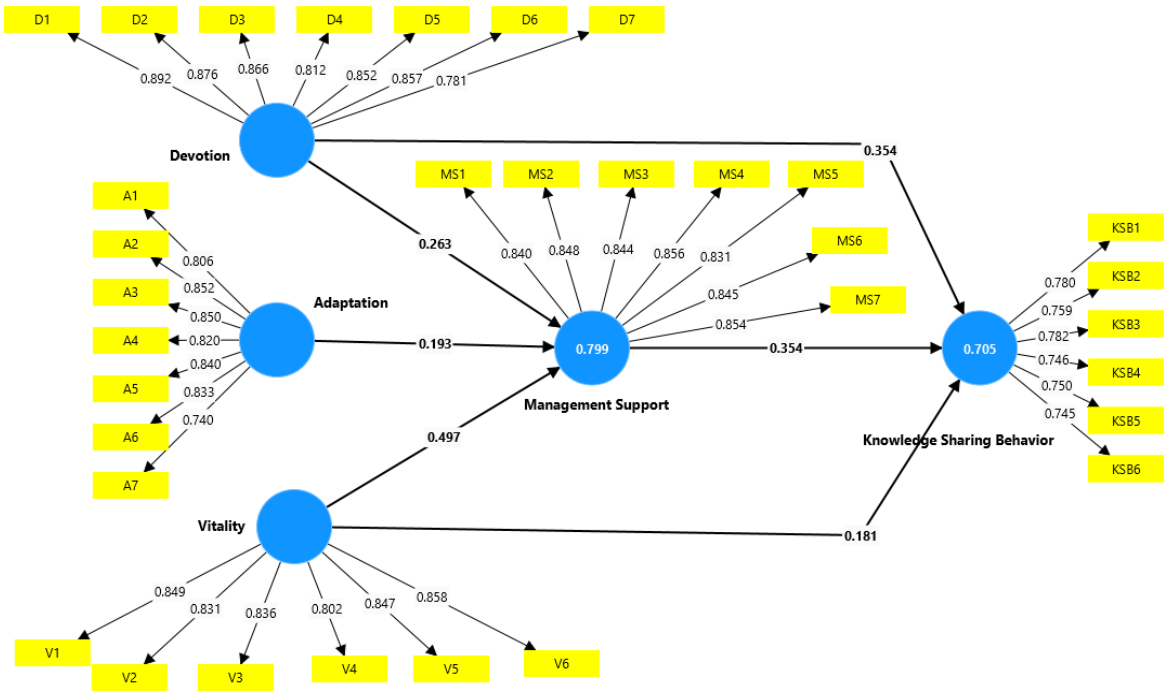

Figure 2. Estimated structural equation model.

4.2.3. Divergent or discriminant validity

In evaluating divergent or discriminant validity (DV), it is essential to ascertain whether constructs that are theoretically unrelated are indeed not correlated. This study employed two established methods—the Fornell-Larcker criterion and the HTMT ratio—to validate DV. According to the Fornell-Larcker criterion (Fornell and Larcker, 1981), the square root of the Average Variance Extracted (AVE) of each construct should exceed the associated correlation coefficients. Additionally, the HTMT ratio, considered the most recent benchmark for DV evaluation, stipulates that each latent construct's HTMT values should be below 0.90 (Henseler et al., 2015).

Tables 3 and **4** present the outcomes of DV assessment using these methods, demonstrating satisfactory distinction among the latent variables in this study. These rigorous analyses ensure the robustness and validity of the constructs employed, thereby enhancing the reliability of the study's findings.

Table 3. Discriminant validity-fornell-larcker criterion.

	Adaptation	Devotion	Knowledge Sharing Behavior	Management Support	Vitality
Adaptation	0.821				
Devotion	0.784	0.849			
Knowledge Sharing Behavior	0.797	0.791	0.761		
Management Support	0.798	0.818	0.801	0.845	
Vitality	0.803	0.812	0.776	0.866	0.837

Source: Field data, 2024.

Table 4. Discriminant validity-heterotrait-monotrait ratio (HTMT)—matrix.

	Adaptation	Devotion	Knowledge Sharing Behavior	Management Support	Vitality
Adaptation					
Devotion	0.844				
Knowledge Sharing Behavior	0.905	0.876			
Management Support	0.860	0.873	0.884		
Vitality	0.874	0.876	0.863	0.934	

Source: Field data, 2024.

4.2.4. Structural model evaluation

The authors used several metrics to evaluate the structural model, including VIF, R^2, the significance of structural paths, and the magnitude of path coefficients. VIF was applied to check for multicollinearity, and since all path VIF values were below 4, no significant multicollinearity issues were identified. To determine the statistical significance of the path coefficients, they used bootstrapping with 5000 subsamples.

The hypothesis testing results offer comprehensive insights into the relationships between various constructs within the study. Each hypothesis examines a specific path between constructs, measuring the strength and significance of these relationships using several statistical metrics: Standard Deviation (SD), *T* statistics, *P* values, and Bias-corrected confidence intervals. The support for each hypothesis is evaluated based on these metrics.

H1 (Adaptation → Knowledge Sharing Behavior):

H1, the path from adaptation to knowledge sharing behavior was examined. The standard deviation (SD) is 0.026, indicating low variability and suggesting consistency in the data. The *T* statistic is 2.626, which measures the effect size relative to the variation in the sample data; a value above 2 is generally considered significant. The *P* value is 0.009, indicating a very low probability that the observed results happened by chance, which is statistically significant ($P < 0.05$). The bias-corrected confidence interval ranges from 0.024 to 0.125, which does not include zero, further confirming the significance of the effect. Thus, this hypothesis is supported.

H2 (Adaptation → Management Support):

H2 Examines whether adaptation influences management support. The SD is 0.055, showing slightly higher variability than H1 but still consistent. The *T* statistic is 3.516, indicating a strong effect. The *P* value is 0.000, providing very strong evidence against the null hypothesis, suggesting a highly significant result. The confidence interval ranges from 0.082 to 0.297, a positive interval that doesn't include zero, indicating a significant effect. Therefore, this hypothesis is supported.

H3 (Devotion → Knowledge Sharing Behavior):

H3 tests the influence of devotion on knowledge sharing behavior. With an SD of 0.049, the variability is low. The *T* statistic is exceptionally high at 9.296, indicating a very strong effect. The *P* value is 0.000, showing extremely strong evidence against the null hypothesis. The confidence interval ranges from 0.354 to 0.546, a wide positive interval that doesn't include zero, indicating a significant and strong effect. This hypothesis is strongly supported.

H4 (Devotion → Management Support):

H4 evaluates the path from devotion to management support. The SD is 0.060, indicating moderate consistency. The *T* statistic is 4.385, suggesting a strong effect. The *P* value is 0.000, providing strong evidence of statistical significance. The confidence interval ranges from 0.160 to 0.397, indicating a positive and significant effect. Thus, this hypothesis is supported.

H5 (Management Support → Knowledge Sharing Behavior):

H5 explores whether management support influences knowledge sharing behavior. The SD is 0.066, indicating moderate variability. The *T* statistic is 5.406, indicating a strong effect. The *P* value is 0.000, suggesting strong statistical significance. The confidence interval ranges from 0.219 to 0.483, indicating a positive and significant effect. This hypothesis is supported.

H6 (Vitality → Knowledge Sharing Behavior):

H6 examines the influence of vitality on knowledge sharing behavior. The SD is 0.049, indicating low variability. The *T* statistic is 7.157, showing a strong effect. The *P* value is 0.000, providing strong evidence of statistical significance. The confidence interval ranges from 0.258 to 0.452, indicating a positive and significant effect. Thus, this hypothesis is supported.

H7 (Vitality → Management Support):

H7 evaluates the path from vitality to management support. The SD is 0.069, indicating moderate consistency. The *T* statistic is 7.184, suggesting a strong effect. The *P* value is 0.000, indicating very strong statistical significance. The confidence interval ranges from 0.358 to 0.632, indicating a positive and significant effect. Therefore, this hypothesis is supported. In summary therefore, all seven hypotheses

are supported by the statistical analyses, indicating significant positive relationships between the constructs examined. The following **Table 5** represents the results of hypotheses testing:

Table 5. Testing of hypothesis.

Hypotheses	Paths	SD	*T* statistics	*P* values	Bias-corrected confidence interval	Result
H1	Adaptation → Knowledge Sharing Behavior	0.026	2.626	0.009	0.024, 0.125	Significant
H2	Adaptation → Management Support	0.055	3.516	0.000	0.082, 0.297	Significant
H3	Devotion → Knowledge Sharing Behavior	0.049	9.296	0.000	0.354, 0.546	Significant
H4	Devotion → Management Support	0.060	4.385	0.000	0.160, 0.397	Significant
H5	Management Support → Knowledge Sharing Behavior	0.066	5.406	0.000	0.219, 0.483	Significant
H6	Vitality → Knowledge Sharing Behavior	0.049	7.157	0.000	0.258, 0.452	Significant
H7	Vitality → Management Support	0.069	7.184	0.000	0.358, 0.632	Yes

Source: Field data, 2024.

The study assessed the indirect effects (**Table 6**) of adaptation, devotion, and vitality on knowledge sharing behavior through management support. The results for each hypothesis are summarized below, including the path, standard deviation (SD), *T* statistics, *P* values, bias-corrected confidence interval, and whether the hypothesis was supported.

H8a (Vitality → Management Support → Knowledge Sharing Behavior):

The standard deviation (SD) was 0.040, indicating low variability. The *T* statistic was 4.437, suggesting a strong effect. The *P* value was 0.000, showing strong statistical significance. The bias-corrected confidence interval ranged from 0.099 to 0.258, indicating a significant positive effect. This hypothesis is supported.

H8b (Adaptation → Management Support → Knowledge Sharing Behavior):

The SD was 0.026, indicating low variability. The *T* statistic was 2.626, suggesting a moderate effect. The *P* value was 0.009, showing statistical significance. The bias-corrected confidence interval ranged from 0.024 to 0.125, indicating a significant positive effect. This hypothesis is supported.

H8c (Devotion → Management Support → Knowledge Sharing Behavior):

The SD was 0.025, indicating low variability. The *T* statistic was 3.758, suggesting a strong effect. The *P* value was 0.000, showing strong statistical significance. The bias-corrected confidence interval ranged from 0.052 to 0.149, indicating a significant positive effect. This hypothesis is supported.

In summary, the study confirmed that vitality, adaptation, and devotion positively influence knowledge sharing behavior through the mediating role of management support. The following **Table 6** shows the results of indirect effects:

Table 6. Specific indirect effect.

Hypotheses	Paths	SD	*T* statistics	*P* values	Bias-corrected confidence interval	Result
H8a	Vitality → Management Support → Knowledge Sharing Behavior	0.040	4.437	0.000	0.099, 0.258	Significant
H8b	Adaptation → Management Support → Knowledge Sharing Behavior	0.026	2.626	0.009	0.024, 0.125	Significant
H8c	Devotion → Management Support→ Knowledge Sharing Behavior	0.025	3.758	0.000	0.052, 0.149	Significant

Source: Field data, 2024.

5. Discussion

This study examines the intricate relationships between adaptation, devotion, vitality, management support, and knowledge sharing behavior within the pharmaceutical sector of an emerging economy. As an essential element for facilitating innovation and operational efficiency, the specific drivers of knowledge-sharing especially within highly regulated knowledge-intensive industries remain underexplored. Grounded in established theories such as the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB), this study provides valuable insights into organizational dynamics and employee behavior. The results generally indicate how the three components of employee engagement—adaptation, devotion and vitality—enhance knowledge-sharing behaviors when paired with supportive management practices. More specifically, a significant positive effect of adaptation on knowledge sharing behavior was established—supporting hypothesis H1 and consistent with Hanafizadeh et al. (2023), who demonstrated that individual adaptation to enterprise IT enhances knowledge sharing within organizations. This suggests that, employees who adapt effectively to new technologies and processes are more likely to share their knowledge as they become proficient with new tools and systems, aligning with TPB where perceived behavioral control influences the intention to share knowledge. The study also found a significant positive effect of adaptation on management support, confirming hypothesis H2, underscoring the importance of robust management support in facilitating effective adaptation within organizations, as highlighted by Gogashvili (2023). The introduction of management support in the framework allows for a deeper investigation of how the key components of engagement facilitate knowledge-sharing behaviors when paired with supportive managerial practices. This finding highlights the significant role of managers in supporting employees through new processes and technological changes and in enhancing their overall adaptation processes. Further, the positive effect of devotion on knowledge sharing behavior as supported by hypothesis H3, aligns with previous findings by Kostina (2022), emphasizing that trust and loyalty are central to fostering a supportive culture within a collaborative environment. Devoted employees, characterized by loyalty and trust, are more likely to engage in behaviors that benefit the organization, such as sharing valuable knowledge, highlighting the role of psychological commitment in promoting collaborative efforts and organizational success. The study also confirms a significant positive effect of devotion on management support, aligning with hypothesis H4, and resonating with the claims by

Ryan (2021), who discussed how devotion in relationships, including those between employees and managers, can strengthen support systems. Devoted employees often perceive and receive greater management support, as managers recognize the mutual benefits of nurturing a loyal and committed workforce—highlighting the importance of fostering devotion to enhance management practices. The significant positive effect of management support on knowledge sharing behavior, consistent with hypothesis H5, aligns with findings from Gichuhi et al. (2023) and Yusuf et al. (2022), who emphasized the important influence of management support on organizational resilience and performance and in fostering a culture of knowledge sharing. Additionally, vitality was found to significantly influence knowledge sharing behavior and providing support to hypothesis H6. This finding resonates with those by Shapiro and Donaldson (2022) who emphasized that, employees who feel energetic and enthusiastic are more likely to engage in knowledge-sharing behaviors. This study also established the significant effect of vitality on management support, as predicted by hypothesis H7, where vital employees and leaders create a dynamic environment that encourages robust support from management. This is consistent with Bălăceanu and Vîrgă (2022), who demonstrated that vitality management interventions reduce work-related stress, suggesting that vital employees are better supported by management, leading to a healthier work environment. Lastly, the indirect effects of vitality, adaptation, and devotion on knowledge sharing behavior through management support were confirmed (H8a, H8b, H8c), emphasizing the crucial role of management support as a mediator in these relationships. With management support emerging as a vital mediator of all the three components of employee engagement, desirable organizational goals like innovation, operational success, organizational resilience and adaptability could be promoted especially within knowledge-intensive sectors like the pharmaceutical industry through knowledge-sharing

Ultimately, these findings contribute to the understanding of how adaptation, devotion, and vitality interact with management support to influence knowledge sharing behavior, providing a comprehensive framework for enhancing organizational practices in the pharmaceutical sector of emerging economies.

6. Conclusion and policy implication

6.1. Conclusion

This study delves into the complex interrelationships among adaptation, devotion, vitality, management support, and knowledge sharing behavior within the pharmaceutical sector of an emerging economy. The findings underscore the significance of these variables in fostering a supportive and collaborative organizational environment. Adaptation significantly influenced knowledge sharing behavior and management support, highlighting the necessity for employees to effectively adjust to new technologies and processes to enhance knowledge dissemination. Devotion, characterized by loyalty and trust, is crucial in fostering knowledge sharing and strengthening management support, emphasizing the role of psychological commitment in organizational success. Vitality, or the energy and enthusiasm of employees, also plays a pivotal role in promoting knowledge sharing and enhancing management support. Moreover, management support emerges as a

critical mediator in the relationships between adaptation, devotion, vitality, and knowledge sharing behavior, underscoring its essential role in facilitating these processes. These findings successfully address the research gap regarding how certain components of employee engagement could contribute to knowledge exchange within the context of a highly regulated industry and with emphasis on the significance of managerial support in facilitating organizational knowledge-sharing through employee engagement. These insights contribute to a deeper understanding of the dynamics within the pharmaceutical sector and provide a comprehensive framework for improving organizational practices.

6.2. Policy implications

The findings of this study have several important policy implications both in practice and in theory for all stakeholders and in particular, for actors within the pharmaceutical sector of emerging economies. First in terms of practice, this study demonstrates the need for organizations to prioritize fostering a culture of adaptation by providing continuous training and development programs that equip employees with the necessary skills to navigate new technologies and processes. This can enhance their ability to share knowledge effectively. Second, fostering a culture of devotion and loyalty can be achieved through initiatives that build trust and commitment among employees. Implementing mentorship programs, recognizing and rewarding loyal employees, and creating a supportive work environment can strengthen this devotion. Third, promoting vitality among employees is essential. Organizations should implement well-being programs that focus on physical, psychological, and emotional health, ensuring employees feel energized and motivated. Encouraging regular breaks, promoting a healthy work-life balance, and offering resources for stress management can enhance overall vitality. Fourth, enhancing management support is crucial for organizational success. Managers should be trained to provide robust support, including effective communication, access to necessary resources, and recognition of employee contributions. Creating a supportive leadership culture can significantly impact knowledge sharing and overall organizational performance. Lastly, organizations should recognize the importance of management support as a mediator. Policies should be designed to enhance management practices that facilitate adaptation, devotion, and vitality, thereby promoting a collaborative and knowledge-sharing environment. By implementing these policies, organizations can enhance their resilience, innovation, and overall performance in the competitive pharmaceutical sector of emerging economies.

In terms of its relevance to theory, this research extends the understanding of employee engagement further by demonstrating its importance to knowledge-sharing and by highlighting the key role that managerial support plays in that regard. It provides empirical evidence that validates all three components of employee engagement and how they contribute to a more active knowledge-sharing behavior when management acts as a facilitator. These findings enrich the discourse on employee engagement and knowledge-sharing and all related theories by highlighting how managers can play an important role in translating employee engagement into actionable organizational outcomes.

6.3. Limitations and recommendations for future research

This article provides very important insights on the relationship between employee engagement, management support and knowledge-sharing behavior within the important industry of pharmaceutical companies and from the context of an emerging economy. The important contributions of this study to current literature notwithstanding, it is not devoid of limitations. First, the study's focus on pharmaceutical companies in Bangladesh limits its generalizability across different geographic regions and cultural contexts. Added to that, the cross-sectional survey design which captured data at a single point may not fully represent long-term causal relationships across variables as well as the influence of potential moderating, mediating or confounding variables overtime. The study's focus on internal factors such as employee engagement, management support and knowledge sharing might not adequately account for possible external influences that may affect knowledge-sharing behaviors within the surveyed organizations.

6.4. Directions for future research

Future similar studies may be replicated in a variety of industries and geographic regions with especially different economic and socio-cultural characteristics to determine if these observed relationships hold across different contexts. Further, future research may explore other variables such as organizational culture, leadership styles, technology and employee characteristics which may influence knowledge-sharing behaviors. Conducting a longitudinal study with a mixed-method approach and a consideration for the potential influences of external factors might also provide deeper insights and uncover some unique factors behind knowledge-sharing behavior that this study did not envisage.

Author contributions: Conceptualization, MAR and MBA; methodology, PT and MJA; software, MJA; validation, MAR, PT and LE; formal analysis, MBA and EJD; investigation, MJA; resources, LE; data curation, EJD; writing—original draft preparation, MAR and PT; writing—review and editing, MBA; visualization, EJD; supervision, MAR; project administration, MBA and LE; funding acquisition, LE. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: This research was supported by the "University of Debrecen Program for Scientific Publication".

Conflict of interest: The authors declare no conflict of interest.

References

Adikoeswanto, D., Eliyana, A., Sariwulan, T., Buchdadi, A. D., & Firda, F. (2020). Quality of work life's factors and their impacts on organizational commitments. Systematic Reviews in Pharmacy, 11(7), 450-461.

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Al Amin, M., Islam, M. S., Amin, M. B., Nowshad, J. H., & Abdullah, M. (2024a). Divergence of alternative tourism in sustainable development of an emerging economy: The role of community-based tourism. Journal of Infrastructure, Policy and Development, 8(14), 7920. https://doi.org/10.24294/jipd7327

Al Amin, M., Jewel, M. M. H., Amin, M. B., Degago, E., & Molnar, E. (2024b). Optimization of ride-sharing services: An investigation of the ride-hailing service providers. Journal of Infrastructure, Policy and Development, 8(12), 7920. https://doi.org/10.24294/jipd.v8i12.7920

Alshamrani, M., Alharthi, S., Helmi, M., & Alwadei, T. (2023). Determinants of employee retention in pharmaceutical companies: Case of Saudi Arabia. Journal of Business and Management Studies, 5(2), 08-22.

Arif, S., & Akram, A. (2018). Transformational leadership and organizational performance: the mediating role of organizational innovation. SEISENSE Journal of Management, 1(3), 59-75.

Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. Technology in Society, 66, 101635.

Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. Technology in Society, 66, 101635.

Azeez, R. O. (2021). Role of Absorption, Dedication, and Vigour on Turnover Intention of Colleges of Education Non-Academic Staff. Journal of Educational and Psychological Studies [JEPS], 15(4), 558-566.

Bai, J., & Liu, J. (2018). A study on the influence of career growth on work engagement among new generation employees. Open Journal of Business and Management, 6(02), 300.

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. Journal of occupational health psychology, 22(3), 273.

Bălăceanu, A., & Vîrgă, D. (2022). How to Increase Employees' Proactive Vitality Management? Testing the Effect of a Training Intervention. International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health, 19(23), 15898. https://doi.org/10.3390/ijerph192315898

Bandura, A. (2001). Social cognitive theory: An agentic perspective. Annual review of psychology, 52(1), 1-26.

Bappy, T. A., Haque, S. M. S., Halim, S. B., & Hossain, Md. N. (2020). Predicting Passengers' Uber Adoption Behaviour: Evidence from Bangladesh. South Asian Journal of Marketing, 1(1), 86–126.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, 88(3), 588–606. https://doi.org/10.1037/0033-2909.88.3.588

Bhatti, S. H., Vorobyev, D., Zakariya, R., & Christofi, M. (2021). Social capital, knowledge sharing, work meaningfulness and creativity: evidence from the Pakistani pharmaceutical industry. Journal of Intellectual Capital, 22(2), 243-259.

Blair-Loy, M., & Cech, E. A. (2016). Demands and Devotion: Cultural Meanings of Work and Overload Among Women Researchers and Professionals in Science and Technology Industries. Sociological Forum, 32(1), 5–27. https://doi.org/10.1111/socf.12315

Blau, P. M. (1964). Justice in social exchange. Sociological inquiry, 34(2).

Bryant, W., & Merritt, S. M. (2021). Unethical pro-organizational behavior and positive leader–employee relationships. Journal of Business Ethics, 168(4), 777-793.

Chin, W. W., Peterson, R. A., & Brown, S. P. (2008). Structural equation modeling in marketing: Some practical reminders. Journal of marketing theory and practice, 16(4), 287-298.

Chowdhury, R. S., Islam, M. A., Yuauf, D. H. B. M., Amin, M. B., Hassan, M. S., Barua, S., & Abdullah, M. (2024). Implications of Artificial Intelligence (AI) and machine learning-based fintech for the financial assets related traditional investment theories. Journal of Infrastructure, Policy and Development, 8(12), 7415. https://doi.org/10.24294/jipd.v8i12.7415

Colquitt, J. A., & Zapata-Phelan, C. P. (2007). Trends in Theory Building and Theory Testing: A Five-Decade Study of the Academy of Management Journal. Academy of Management Journal, 50(6), 1281–1303. https://doi.org/10.5465/amj.2007.28165855

De Jonge, J., & Peeters, M. C. (2019). The Vital Worker: Towards Sustainable Performance at Work. International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health, 16(6), 910. https://doi.org/10.3390/ijerph16060910

Dijkstra, T. K., & Henseler, J. (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. Computational statistics & data analysis, 81, 10-23.

Donate, M. J., & Guadamillas, F. (2011). Organizational factors to support knowledge management and innovation. Journal of knowledge management, 15(6), 890-914.

Dunlop, R., & Scheepers, C. B. (2023). The influence of female agentic and communal leadership on work engagement: vigour, dedication and absorption. Management research review, 46(3), 437-466.

Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. Journal of applied psychology, 75(1), 51.

Fishbein, M., & Ajzen, I. (1975). Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research. Addison-Wesley Publishing Company.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.1177/002224378101800104

Gazi, M. A. I., bin Yusof, M. F., Islam, M. A., Amin, M. B., & bin S Senathirajah, A. R. (2024). Analyzing the Impact of Employee Job Satisfaction on Their Job Behavior in the Industrial Setting: An Analysis from the Perspective of Job Performance. Journal of Open Innovation: Technology, Market, and Complexity, 100427. https://doi.org/10.1016/j.joitmc.2024.100427

George, B., Pandey, S. K., Steijn, B., Decramer, A., & Audenaert, M. (2021). Red Tape, organizational performance, and employee outcomes: Meta-analysis, meta-regression, and research agenda. Public Administration Review, 81(4), 638-651.

Gichuhi, J. M., Oginde, D., & Wambua, P. (2023). Relevance of Management Support and Consideration in Augmenting Organizational Resilience: Evidence from Telecommunication Companies in Kenya. https://doi.org/10.31219/osf.io/a4ydh

Gogashvili, T. G. T. (2023). Adaptation mechanism for organizational development. Ekonomika, 105(1–2), 69–79. https://doi.org/10.36962/ecs105/1-2/2023-69

Hair, J. F., Babin, B. J., Black, W. C., & Anderson, R. E. (2019). Multivariate Data Analysis (8th ed.). Cengage Learning. https://www.cengage.co.in/book-list/ebook/multivariate-data-analysis-8e-2t

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2016). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed.). Sage publications. https://us.sagepub.com/en-us/nam/a-primer-on-partial-least-squares-structural-equation-modeling-pls-sem/book244583

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hakanen, J. J., Ropponen, A., De Witte, H., & Schaufeli, W. B. (2019). Testing Demands and Resources as Determinants of Vitality among Different Employment Contract Groups. A Study in 30 European Countries. International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health, 16(24), 4951. https://doi.org/10.3390/ijerph16244951

Hanafizadeh, P., Taherianfar, A., & Neisi, M. A. (2023). Individual Adaptation in the Face of Enterprise IT Changes in the Organization. Journal of Telecommunications and the Digital Economy, 11(1), 57–90. https://doi.org/10.18080/jtde.v11n1.663

Hasan, M., Abedin, M. Z., Amin, M. B., Nekmahmud, M., & Oláh, J. (2023). Sustainable biofuel economy: A mapping through bibliometric research. Journal of Environmental Management, 336, 117644. https://doi.org/10.1016/j.jenvman.2023.117644

Havlovska, N., Illiashenko, O., Konoplina, O., Shevchuk, I., Hlynska, A., & Prytys, V. (2020). Strategic Adaptation as a Way of Managing Organizational Changes in the Context of Implementing a Safety Oriented Enterprise Management Approach. TEM Journal, 1053–1061. https://doi.org/10.18421/tem93-29

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial management & data systems, 116(1), 2-20.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hosain, M. S., Amin, M. B., Imam, H., Rahaman, M. A., & Oláh, J. (2024). The spillover effect of a part-time job experience on the performance of subsequent full-time job: Empirical evidence from Hungary. Social Sciences & Humanities Open, 10, 101023. https://doi.org/10.1016/j.ssaho.2024.101023

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: Testing the UTAUT model. Information & Management, 48(1), 1–8. https://doi.org/10.1016/J.IM.2010.09.001

Işık, C., Ongan, S., Islam, H., & Menegaki, A. N. (2024). A roadmap for sustainable global supply chain distribution: Exploring the interplay of ECON-ESG factors, technological advancement and SDGs on natural resources. Resources Policy. https://doi.org/10.1016/j.resourpol.2024.105114

Islam, K. A., Amin, M. B., Hossain, S. A., Islam, R., & Popp, J. (2023). Critical success factors of the financial performance of commercial private banks: A study in a developing nation. Banks and Bank Systems, 18(4), 129. http://dx.doi.org/10.21511/bbs.18(4).2023.12

Islam, K. M. A., Amin, M. B., Bari, M. F., Hossain, M. S., Anonthi, F., Mostafa, R., & Erdey, L. (2024). Advancing sustainability: A comprehensive review of green technology innovations and their environmental impact. Journal of Infrastructure, Policy and Development, 8(15), 9481. https://doi.org/10.24294/jipd9481

Jaya, L. H. S., & Ariyanto, E. (2021). The effect of vigor, dedication and absorption on the employee performance of PT Garuda Indonesia Cargo. European Journal of Business and Management Research, 6(4), 311-316.

Kandil, M. A., & Moustafa, M. A. E. (2021). The effect of virtual leadership practices on work engagement during COVID-19. Delta University Scientific Journal, 4(1), 44-53.

Karim, M. M., Amin, M. B., Ahmed, H., Hajdú, Z., & Popp, J. (2023). The influence of leadership styles on employee performance in telecom companies of Bangladesh. Problems and Perspectives in Management, 21(3), 671-681. http://dx.doi.org/10.21511/ppm.21(3).2023.52

Karim, M. M., Amin, M. B., Bhuiya, M. I. I., Abdullah, M., Ahammad, I., & Bács, Z. (2024). Contributions of emotional intelligence to social entrepreneurial intention: Evidence from an emerging nation. International Review of Applied Sciences and Engineering. https://doi.org/10.1556/1848.2024.00906

Kassim, M. A. M., Hassan, M. S., Amin, M. B., Abdullah, M. S., Salahudin, S. N., & Illés, C. B. (2024). Enhancing sustainable mobility and communities: A structural equation modelling analysis of motorcyclists' proneness in road accidents. Journal of Infrastructure, Policy and Development, 8(9), 6179. https://doi.org/10.24294/jipd.v8i9.6179

Kim, J. Y., & Choi, J. H. (2022). The Impact of Adaptation-Oriented HRM on Exploration: Mediating Effects of Self-Organization. Sustainability, 14(23), 15772. https://doi.org/10.3390/su142315772

Kline, R. B. (2023). Principles and Practice of Structural Equation Modeling (5th ed.). Guilford publications. https://www.guilford.com/books/Principles-and-Practice-of-Structural-Equation-Modeling/Rex-Kline/9781462551910

Kock, N. (2015). Common Method Bias in PLS-SEM. International Journal of E-Collaboration, 11(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Kostina, E. (2022). Formation of employees' devotion, loyalty and trust in the system of psychological prevention of staff turnover in educational organizations of the MIA of Russia. Vestnik Sankt-Peterburgskogo Universiteta MVD Rossii, 2022(3), 166–175. https://doi.org/10.35750/2071-8284-2022-3-166-175

Kurniawan, I. S., & Harsono, M. (2021). Dukungan Organisasi yang Dirasakan: Anteseden, Proses, dan Hasil. Jurnal Manajemen Dan Organisasi, 12(1), 67–80. https://doi.org/10.29244/jmo.v12i1.34092

Lin, H. F. (2007). Knowledge sharing and firm innovation capability: an empirical study. International Journal of manpower, 28(3/4), 315-332.

Liu, X., Yu, J., Guo, Q., & Li, J. (2022). Employee engagement, its antecedents and effects on business performance in hospitality industry: a multilevel analysis. International Journal of Contemporary Hospitality Management, 34(12), 4631-4652.

Lopez-Zafra, E., Pulido-Martos, M., & Cortés-Denia, D. (2022). Vigor at work mediates the effect of transformational and authentic leadership on engagement. Scientific Reports, 12(1), 17127.

Mahmud, A., Ding, D., Hasan, M., Ali, Z., & Amin, M. B. (2023). Employee psychological reactions to micro-corporate social responsibility and societal behavior: A structural equation modeling analysis. Current Psychology, 42(20), 17132-17146. https://doi.org/10.1007/s12144-022-02898-2

Maisyuri, R. S. I., & Ariyanto, E. (2021). The affect of vigor, dedication and absorption on the employee performance at Pt. Mandiri Utama Finance. Dinasti International Journal of Management Science, 2(4), 689-702.

Memon, S. B., Soomro, S. B., & Kumar, S. (2018). Assessing the work engagement, work practices and work performance in banks. Journal of Administrative and Business Studies, 4(3), 165-184.

Mollah, M. A., Pal, D., Amin, M. B., Rahaman, M. A., Abdullah, M. (2024). Effect of technological culture and knowledge sharing on organizational performance: The mediating role of digital innovation and self-efficacy as moderation. Journal of Infrastructure, Policy and Development, 8(12), 7594. https://doi.org/10.24294/jipd.v8i12.7594

Montani, F., & Staglianò, R. (2022). Innovation in times of pandemic: The moderating effect of knowledge sharing on the relationship between COVID-19-induced job stress and employee innovation. R&D Management, 52(2), 193-205.

Mustafi, M. A. A., Dong, Y. J., Hosain, M. S., Amin, M. B., Rahaman, M. A., & Abdullah, M. (2024). Green Supply Chain Management Practices and Organizational Performance: A Mediated Moderation Model with Second-Order Constructs. Sustainability, 16(16), 6843. https://doi.org/10.3390/su16166843

Nawaz, A., Gilal, F. G., Soomro, M. I., Gilal, R. G., & Channa, K. A. (2024). Driving innovation through servant leadership in higher education: Unveiling the serial mediating mechanisms of subjective well-being and knowledge sharing. Knowledge and Process Management, 31(1), 3-16.

Osman, M. A., Noah, S. A. M., & Saad, S. (2022). Ontology-based knowledge management tools for knowledge sharing in organization—a review. IEEE access, 10, 43267-43283.

Park, B. G. (2015). A Convergence Study of Transformational Leadership on Organizational Devotion and Team Performance - Moderating Effects of Authenticity -. Diji'teol Jeongchaeg Yeon'gu, 13(7), 117–124. https://doi.org/10.14400/jdc.2015.13.7.117

Petrenko, B. (2021). Employee Adaptation As an Essential Element of Human Resource Management in a Production Organization. Upravlenie Personalom I Intellektual′nymi Resursami V Rossii, 10(1), 44–51. https://doi.org/10.12737/2305-7807-2021-10-1-44-51

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Prayoga, R., Suherman, E., & Apriani, Z. (2023). Pengaruh Knowledge Sharing terhadap Perilaku Inovatif pada Pengurus Organisasi Mahasiswa (Studi pada Pengurus Organisasi Mahasiswa Fakultas Ekonomi dan Bisnis UBP Karawang Periode 2022-2023). Journal on Education/Journal on Education, 5(3), 9799–9814. https://doi.org/10.31004/joe.v5i3.1861

Qing, W., Amin, M. B., Gazi, M. A. I., Khan, W., Al Masud, A., & Alam, M. N. (2023). Mediation effect of technology adaptation capabilities between the relationship of service quality attributes and customer satisfaction: an investigation on young customers perceptions toward e-commerce in China. IEEE Access, 11, 123904-123923. https://doi.org/10.1109/ACCESS.2023.3328775

Qureshi, M. A., Ansari, J., Hassan, M., & Rasheed, A. (2021). Factors affecting employee retention in pharmaceutical sector in Pakistan. Journal of Geography and Social Sciences (JGSS), 3(1), 31-48.

Rahaman, M. A., Amin, M. B., Taru, R. D., Ahammed, M. R., & Rabbi, M. F. (2023). An analysis of renewable energy consumption in Visegrád countries. Environmental Research Communications, 5(10), 105013. https://doi.org/10.1088/2515-7620/acff40

Rahman, M. H., Amin, M.B., Yusof, M. F., Islam, M. A., & Afrin, S. (2024). Influence of teachers' emotional intelligence on students' motivation for academic learning: an empirical study on university students of Bangladesh. Cogent Education, 11(1), 2327752. https://doi.org/10.1080/2331186X.2024.2327752

Rahnjen, D., Oktavio, A., Henryanto, A. G., Kurniawati, A. D., & Adeline, F. (2023). Knowledge Sharing Mempengaruhi Innovative Work Behavior Karyawan pada Usaha Kecil dan Menengah (UKM): Peran Organizational Climate sebagai Moderator. Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi, 10(1), 220–239. https://doi.org/10.35794/jmbi.v10i1.45910

Rezaei, M., Giovando, G., Rezaei, S., & Sadraei, R. (2022). What are the fundamental knowledge-sharing drivers of small family businesses in the restaurant and fast-food industry?. British Food Journal, 124(7), 2149-2178.

Ryan, T. (2021). Devotion: "Being Shore to the Ocean." In Springer eBooks (pp. 195–208). https://doi.org/10.1007/978-3-030-45996-3_11

Sadeh, A., Zwikael, O., & Meredith, J. (2022). Organizational support as an effective risk mitigation approach. International Journal of Managing Projects in Business, 15(7), 1123–1143. https://doi.org/10.1108/ijmpb-02-2022-0045

Saira, S., Mansoor, S., & Ali, M. (2021). Transformational leadership and employee outcomes: the mediating role of psychological empowerment. Leadership & Organization Development Journal, 42(1), 130-143.

Shahneaz, M. A., Amin, M. B., & Eni, L. N. (2020). The Interplay between the psychological factors and entrepreneurial intention: An empirical investigation. The Journal of Asian Finance, Economics and Business (JAFEB), 7(12), 139-146. http://dx.doi.org/ 10.13106/jafeb.2020.vol7.no12.139

Shapiro, J., & Donaldson, S. I. (2022). The Leader Vitality Scale: Development, Psychometric Assessment, and Validation. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.884672

Singh, S. K., Gupta, S., Busso, D., & Kamboj, S. (2021). Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. Journal of business research, 128, 788-798.

Tamsah, H., Ansar, Gunawan, Yusriadi, Y., & Farida, U. (2020). Training, knowledge sharing, and quality of work-life on civil servants performance in Indonesia. Journal of Ethnic and Cultural Studies, 7(3), 163-176.

Tenenhaus, M. (2008). Component-based structural equation modelling. Total quality management, 19(7-8), 871-886.

Tokal, P. (2023). The Effect of Knowledge Sharing on Innovative Behavior in Organizations. In Advances in wireless technologies and telecommunication book series (pp. 196–208). https://doi.org/10.4018/978-1-6684-6620-9.ch013

Tummers, L., Steijn, B., Nevicka, B., & Heerema, M. (2016). The Effects of Leadership and Job Autonomy on Vitality: Survey and Experimental Evidence. Review of Public Personnel Administration, 38(3), 355–377. https://doi.org/10.1177/0734371x16671980

Ullah, M. S., Islam, M. R., Amin, M. R., Amin, M. B., Rahman, M. M., & Erdey, L. (2024). The effects of compensation, organizational commitment, and job satisfaction on work productivity: Evidence from readymade garments industry in an emerging economy. Journal of Infrastructure, Policy and Development, 8(13), 8494. https://doi.org/10.24294/jipd.v8i13.8494

Unaam, A. O., Adim, C. V., & Adubasim, E. I. (2018). Employee loyalty and organizational citizenship behaviour in the Port Harcourt area command of the Nigeria police force. International Journal of Business, Economics and Management, 5(6), 135-145.

Wang, C., & Hu, Q. (2020). Knowledge sharing in supply chain networks: Effects of collaborative innovation activities and capability on innovation performance. Technovation, 94, 102010.

Wörtler, B., Van Yperen, N. W., Mascareno, J. M., & Barelds, D. P. H. (2020). The Link Between Employees' Sense of Vitality and Proactivity: Investigating the Moderating Role of Personal Fear of Invalidity. Frontiers in Psychology, 11. https://doi.org/10.3389/fpsyg.2020.02169

Yao, W., Zhang, X., & Gong, Q. (2021). The effect of exposure to the natural environment on stress reduction: A meta-analysis. Urban forestry & urban greening, 57, 126932.

Yu, X., Amin, M. B., Olga, P., Rahaman, M. A., & Sony, M. A. A. M. (2024). Gender-based emergency response and crisis management knowledge assessment: A cross-sectional study on Chinese tertiary student. International Journal of Disaster Risk Reduction, 112, 104800. https://doi.org/10.1016/j.ijdrr.2024.104800

Yuen, S. S., & Lam, H. Y. (2024). Enhancing Competitiveness through Strategic Knowledge Sharing as a Driver of Innovation Capability and Performance. Sustainability, 16(6), 2460.

Yumhi, Y., Dharmawan, D., Febrian, W. D., & Sutisna, A. J. (2024). Application of Rapid Application Development Method in Designing a Knowledge Management System to Improve Employee Performance in National Construction Company. Jurnal Informasi Dan Teknologi, 155-160.

Yusuf, M., Budiyanto, B., Agustedi, A., & Fitrio, T. (2022). The role of organizational support in moderating the effect of competence and organizational commitment on management performance. Management Science Letters, 12(3), 145–152. https://doi.org/10.5267/j.msl.2022.2.005

Zaremohzzabieh, Z., & Rasdi, R. M. (2023). Revisiting the determinants of knowledge-sharing behavior in organizations: a meta-analytic structural equation model application. Global Knowledge, Memory and Communication. https://doi.org/10.1108/gkmc-02-2022-0034

Zhang, C., Jiang, N., Su, T., Chen, J., Streimikiene, D., & Balezentis, T. (2022). Spreading knowledge and technology: Research efficiency at universities based on the three-stage MCDM-NRSDEA method with bootstrapping. Technology in Society, 68, 101915.

Zighan, S., Dwaikat, N. Y., Alkalha, Z., & Abualqumboz, M. (2024). Knowledge management for supply chain resilience in pharmaceutical industry: evidence from the Middle East region. The International Journal of Logistics Management, 35(4), 1142-1167.

Appendix

Table A1: Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	18.936	57.383	57.383	8.936	27.383	27.383
2	1.671	5.062	62.445			
3	1.347	4.083	66.528			
4	1.065	3.228	69.756			
5	0.930	2.817	72.574			
6	0.856	2.593	75.167			
7	0.701	2.123	77.290			
8	0.688	2.084	79.374			
9	0.632	1.916	81.290			
10	0.546	1.653	82.943			
11	0.525	1.591	84.534			
12	0.459	1.392	85.926			
13	0.445	1.349	87.274			
14	0.389	1.179	88.453			
15	0.368	1.116	89.569			
16	0.357	1.081	90.651			
17	0.339	1.027	91.678			
18	0.292	0.886	92.564			
19	0.269	0.816	93.381			
20	0.243	0.737	94.117			
21	0.239	0.724	94.841			
22	0.222	0.673	95.514			
23	0.212	0.643	96.157			
24	0.206	0.625	96.782			
25	0.196	0.594	97.376			
26	0.162	0.490	97.866			
27	0.157	0.476	98.342			
28	0.125	0.380	98.722			
29	0.124	0.375	99.097			
30	0.104	0.316	99.413			
31	0.085	0.258	99.671			
32	0.074	0.224	99.895			
33	0.035	0.105	100.000			

Extraction method: Principal component analysis.