

Enhancing Resilience of Small and Medium Enterprises through Knowledge Management in Security-Challenged Regions: Evidence from Northeast Nigeria

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Abstract

Small and Medium-sized Enterprises are increasingly vulnerable to external shocks, with limited capacity to recover due to constrained resources and inadequate knowledge structures. This study investigates the extent to which knowledge acquisition, knowledge sharing, and knowledge application influence SME resilience in Biu, Borno State. A structured survey was administered on 372 SME operators in Biu metropolis, and the data were analyzed using multiple regression technique. The results indicate that all three dimensions of knowledge management significantly predict SME resilience in Biu. Knowledge acquisition enhances preparedness, knowledge sharing promotes internal cohesion and collaboration, while knowledge application ensures the strategic use of insights to mitigate risks and maintain operations. These findings reinforce the Knowledge-Based Theory (KBT) proposition that knowledge must be created, shared, and internalized to generate organizational value. The study concludes that building resilient SMEs requires embedding knowledge processes into daily business routines. It recommends that SME managers invest in continuous learning, foster collaborative environments to encourage knowledge exchange, and prioritize the strategic application of knowledge in operational decision-making.

Keywords: SME resilience, knowledge management, knowledge acquisition, knowledge sharing, knowledge application, external shocks

Introduction

In today's volatile and complex global environment, businesses face mounting challenges ranging from technological disruptions and economic uncertainty to climate change, pandemics, and geopolitical conflicts. These factors have amplified the risks for firms, particularly in developing regions, and demand new strategies for resilience (Odulaja, Oke, Eleogu, Abdul & Daraojimba, 2023). For SMEs operating in security-challenged areas like Northeast Nigeria, these issues are further compounded by localized insecurity and institutional fragility. Small and medium-sized enterprises (SMEs) often operate with constrained resources and possess limited capacity to influence or respond to external environmental changes (Katere, Marshall & Valdivia, 2021; Eggers, 2020). Unlike larger corporations, SMEs typically encounter heightened difficulties in responding to and recovering from crises, rendering them more susceptible to collapse during economic disruptions (Snyder et al., 2016). These challenges are largely attributed to factors such as restricted access to financial capital, insufficient managerial expertise, heavy reliance on a narrow customer base, and a general lack of readiness for unforeseen shocks (Sharma, Kraus, Talan, Srivastava & Theodoraki, 2024; Miklian & Hoelscher, 2022). To survive, Riadi, Hapsari,

Budiman, Anwar and Yudaruddin (2023) emphasize that effective knowledge management (KM) can play a transformative role in helping small businesses navigate crises and uncertainty.

Knowledge management encompasses the systematic processes of acquiring, organizing, applying, and sharing knowledge within an organization (de Bem Machado, Secinaro, Calandra & Lanza Longa, 2022). It facilitates innovation, decision-making, and adaptability, enabling firms to respond effectively to environmental changes. Durst and Zieba (2020) underscore KM's potential to drive sustainability, while Chen, Luo, Chen and Guo (2022) link it to operational efficiency, innovation, and competitiveness. The importance of KM is particularly pronounced for SMEs, which often lack the structural robustness of larger firms. Scholars have noted that KM enables SMEs to leverage critical insights, respond swiftly to disruptions, and explore new growth opportunities (Rao, Nandini & Zachariah, 2023; Durst, Palacios Acuache & Bruns, 2021)

In knowledge-driven economies, intangible assets such as intellectual capital are increasingly prioritized over traditional factors of production like labour and capital (Escobar-Castillo & Velandia-Pacheco, 2024; Durst, Edvardsson & Foli, 2023). However, many SMEs in Biu, Borno State struggle with effective KM practices. A lack of mentorship culture, inadequate technical expertise, poor succession planning, and low employee engagement have undermined the sustainability of these enterprises (Escobar-Castillo & Velandia-Pacheco, 2024). Some SME owners see mentoring and knowledge sharing as unnecessary, while others lack the skills to acquire or apply strategic knowledge (Durst, Foli & Edvardsson, 2024; Escobar-Castillo & Velandia-Pacheco, 2024). Additionally, employee disengagement and disinterest in long-term business objectives pose further risks to business continuity. This deficiency in KM strategies is particularly concerning in a region marked by prolonged security challenges. Kariuki, Were and Ombui (2020) found that limited access to information and knowledge hampers SME performance in key areas such as financial management, marketing, and supply chain optimization. Okoli, Nwakoby and Adani (2023) further argue that ineffective KM practices significantly constrain SMEs' capacity to innovate and scale.

While a growing body of research has examined KM in large corporations and multinational enterprises (Patwary et al., 2022; Samie & Jazghani, 2022; Arzubagi, De Massis, Kammerlander & Hoy, 2021), relatively few studies have focused on SMEs, especially in fragile and security-challenged regions. Moreover, existing findings remain inconclusive. Some studies report strong positive correlations between KM dimensions and firm performance (Balasubramanian, Al-Ahbabi & Sreejith, 2020; Liu & Deng, 2015), while others find weak or indirect associations (Mohamad, Ramayah & Lo, 2020; Kmiecik & Michna, 2018; Ngah & Wong, 2012). These mixed results underscore the need for further investigation, particularly in under-researched contexts.

Against this backdrop, this study seeks to investigate the effect of knowledge management on the resilience of SMEs in Biu, Borno State, Northeast Nigeria - a region plagued by insecurity and economic instability. The study aims to provide empirical evidence on how KM can enhance SME resilience in such challenging environment. Specifically, the study aims to:

- i. examine the effect of knowledge acquisition on the resilience of SMEs in Biu, Borno State.
- ii. assess the influence of knowledge sharing on the resilience of SMEs in Biu, Borno State.
- iii. evaluate the impact of knowledge application on the resilience of SMEs in Biu, Borno State.

Conceptual Clarification

SMEs Resilience

Although there is no universal consensus among scholars regarding the precise definition and constituents of resilience, it is widely conceptualized as an organization's capacity to anticipate, respond to, adapt, and recover from disruptions while maintaining operational continuity and minimizing adverse impacts (Koporcic, Kukkamalla, Markovic & Maran, 2025; Hillmann, 2021). Within the context of small and medium-sized enterprises (SMEs), resilience is increasingly viewed through multidimensional attributes such as adaptability, responsiveness, sustainability, and competitiveness (Bak, Shaw, Colicchia & Kumar, 2020). Expanding on this perspective, Conz, Denicolai and Zucchella (2017) emphasized that SME resilience is primarily shaped by internal strategic choices and capabilities, rather than solely by external environmental factors. Specifically, SMEs' ability to withstand and navigate adverse conditions is closely linked to their internally driven mechanisms for learning, decision-making, and transformation. Informed by these conceptual perspectives, this study examines the extent to which dimensions of knowledge management - specifically knowledge acquisition, knowledge sharing, and knowledge application - serve as predictors of SME resilience in Biu, Borno State, a region significantly impacted by Boko Haram insurgency in Northeast Nigeria.

Knowledge Management

Knowledge is widely recognized as a critical intangible asset that empowers businesses to innovate, build core competencies, and sustain competitive advantage (Olubiyi et al., 2024; Su & Dasgupta, 2022). It encompasses individual insights, practical skills, and understanding that collectively enhance organizational capacity. As such, knowledge management (KM) has emerged as a central theme in strategic management discourse (Shao & Ariss, 2020). KM is broadly defined as the systematic process of acquiring, organizing, sharing, and utilizing knowledge from both internal and external sources to generate new ideas, inform strategies, and drive organizational objectives (de Bem Machado et al., 2022; Ammirato, Linzalone & Felicetti, 2021). It involves both tacit and explicit knowledge, requiring deliberate regulation and control to ensure effective dissemination and responsible usage (Kianto, Shujahat, Hussain, Nawaz & Ali 2019; Samuel & Odor, 2018)

In line with these perspectives, knowledge management can be understood as a structured, context-specific process that entails scanning the environment, acquiring relevant information, coding and sharing it appropriately, and ensuring its ethical and legal use within the organization. Ultimately, KM seeks to enhance employee efficiency and overall organizational effectiveness, ensuring that knowledge flows are purposeful, secure, and aligned with strategic goals.

Dimensions of Knowledge Management

Knowledge management (KM) is a multifaceted concept encompassing various dimensions and interpretations that have evolved over time. Early discourse on KM primarily emphasized the processes of knowledge creation and transfer, particularly focusing on the distinction between tacit and explicit knowledge (Dalmarco, Maehler, Trevisan & Schiavini, 2017; Nonaka, 1994). As the field has matured, scholars have proposed a range of KM practices and frameworks. For instance, some studies highlight dissemination and storage as core KM activities (Alegre, Sengupta & Lapedra, 2013), while others adopt a more integrative view, identifying acquisition, assimilation, transformation, and exploitation as essential dimensions (Xie, Wang & Zeng, 2018).

Drawing from the extensive body of KM literature, it is evident that core KM dimensions generally include knowledge creation, acquisition, codification, storage, dissemination, and application. In alignment with this conceptual foundation, this study adopts three key dimensions of KM: knowledge acquisition, knowledge transfer, and knowledge application, as they are most relevant to understanding how SMEs in security-challenged environments enhance resilience and maintain operational continuity.

Knowledge Acquisition and SMEs Resilience

Knowledge acquisition refers to an organization's ability to identify, access, and gather essential internal and external knowledge relevant to its operations (Matin & Sabagh, 2015). It involves the firm's capability to scout, detect, and store knowledge crucial for maintaining competitiveness. While knowledge acquisition alone does not ensure effective application, it represents a potential capability that contributes to organizational advantage (Fom, Pwol & Ogaji, 2023). Mor, Madan, Archer and Ashta (2020) highlighted that micro-entrepreneurs with adequate financial resources are more likely to withstand challenges in volatile business environments. Consequently, developing resilience through targeted knowledge acquisition can strengthen the ability of hospitality enterprises to recover from disruptions such as those caused by the COVID-19 pandemic (Martinez-Martinez, Cegarra-Navarro, Cobo & de Valon, 2022). Resilience is increasingly recognized as being rooted in proactive behaviour, suggesting that owner-managers of microenterprises must actively seek and apply relevant knowledge to improve business performance (Batra, 2022). In line with these arguments, it is anticipated that acquiring pertinent knowledge will positively influence the resilience of small and medium-sized enterprises (SMEs). On this basis, the following hypothesis is proposed:

H₁: Knowledge acquisition significantly influences the resilience of SMEs.

Knowledge Sharing and SMEs Resilience

Knowledge sharing, also referred to as knowledge flow, transfer, or distribution is the process through which information, experiences, insights, and skills are exchanged among individuals or organizational units (Samuel & Justina, 2023; Ahmad & Karim, 2019). This exchange may occur through formal and informal channels, including meetings, mentorship, social networks, and digital platforms (Wang, Yin, Ma & Liao, 2022). Effective knowledge sharing promotes collaboration, creativity, and problem-solving, while enhancing organizational learning and performance (Singh, Gupta, Busso & Kamboj, 2021; Ganguly, Talukdar & Chatterjee, 2019). A strong culture of knowledge sharing is therefore essential for maximizing employee capacity and achieving project outcomes (Suhana et al., 2020).

Zayed et al (2022) emphasize that for business resilience to manifest, knowledge embedded in databases, documents, and other organizational sources must be actively disseminated among employees. In alignment with this view, Boro (2022) contends that micro-entrepreneurs who fail to foster a culture of knowledge sharing among staff are inadvertently paving the way for business failure. Empirical studies have further demonstrated that the absence of collaborative knowledge exchange within the workplace can lead to dissatisfaction and counterproductive behaviours among employees (Kiseli, 2016; Kumar & Babu, 2015). Supporting this perspective, Munasinghe, Gunawardhana, Wickramaarachchi and Ariyawansa (2021) argue that strategic collaboration with peers in the same industry enhances the resilience of enterprises. In the context of post-COVID-19 recovery, Prasongthan (2022) asserts that effective knowledge sharing serves as a vital

mechanism for overcoming pandemic-induced disruptions, urging business managers to engage in peer-to-peer interactions within the sector. Based on these scholarly insights, it is postulated that knowledge sharing is a significant predictor of resilience among SMEs. Accordingly, the second hypothesis is proposed:

H₂: Knowledge sharing has a significant effect on SMEs' resilience.

Knowledge Application and SMEs Resilience

Knowledge application involves the practical implementation of acquired knowledge to improve decision-making, solve problems, enhance performance, and create value (Barney, 2019). It represents the stage where theoretical insights are translated into tangible outcomes, particularly in improving service delivery, product quality, and operational efficiency. Thus, effective knowledge application is vital for leveraging intellectual capital in ways that directly benefit the organization's goals and performance. Accordingly, Lee and Hidayat (2018) maintain that knowledge which is merely acquired, stored, and disseminated yet not effectively applied in relevant operational contexts holds little practical value. Similarly, Schwaiger, Zehrer and Braun (2021) emphasize that strategic resilience is closely tied to the effective utilization of knowledge.

Building on this premise, Munasinghe et al. (2021) assert that the success of entrepreneurs and by extension, SMEs in the post-COVID-19 economic environment is significantly influenced by how well distributed or shared knowledge is applied by their employees. Supporting this view, Kiseli (2016) and Ozigbo (2015) argue that the primary objective of knowledge management in addressing organizational challenges is to ensure meaningful application. Extending this perspective, Mbuvi (2014) contends that knowledge utilization reinforces corporate, business, and operational strategies, thereby enabling hospitality managers to achieve defined performance goals. Given these scholarly assertions, the third *a priori* expectation of this study is that the application of knowledge will positively influence the resilience of small and medium-sized enterprises (SMEs). Consequently, the following hypothesis is proposed:

H₃: Knowledge application has a significant effect on SMEs' resilience.

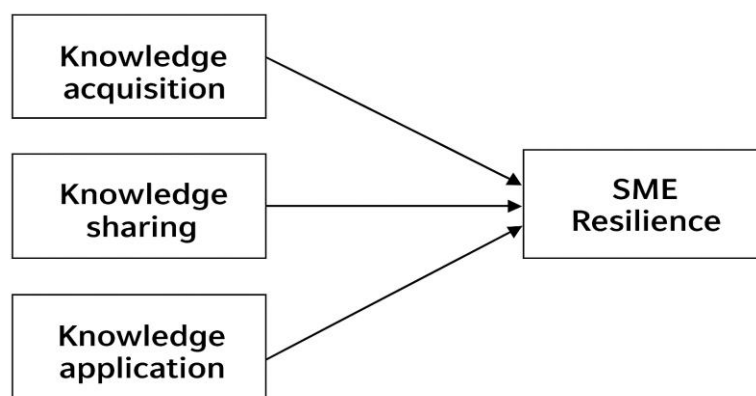


Figure 1 Conceptual framework of linkage between knowledge management and the resilience of SMEs in Biu, Borno State

Source: Authors (2025).

Theoretical Framework

This work is anchored the knowledge-based view theory. Knowledge-Based Theory (KBT), developed by Nonaka and Takeuchi in 1995, is a theoretical framework that emphasizes the role of knowledge in organizations and its contribution to competitive advantage and performance (Nonaka & Takeuchi, 1995). Knowledge-based theory, also known as knowledge-based view (KBV) or knowledge-based theory of the firm is a perspective in strategic management and organizational theory that emphasizes the role of knowledge as a critical resource for firms to gain competitive advantage and achieve superior performance. At its core, knowledge-based theory argues that knowledge assets, such as expertise, information, and capabilities, are central to a firm's ability to innovate, adapt, and compete effectively in the marketplace. This perspective suggests that firms can create value and sustain competitive advantage and resilience by leveraging their unique knowledge assets in ways that are difficult for competitors to replicate.

This theory focuses on how organizations, and by extension, SMEs in Biu, Borno State create, acquire, protect, transfer and utilize knowledge. Ode and Ayavoo (2020) submitted that in terms of market value, the KBV perceives knowledge as the most important strategic organizational resources. Due to the significance of knowledge, Nonaka (1994) argued that the core purpose of an organization is to create and apply knowledge. From the angle of KBV, a firm can achieve competitive through its ability to use and improve its knowledge assets (Cabrera-Suárez, De Saá-Pérez & García-Almeida, 2001). Most knowledge assets are dynamic and intangible in nature, with special features that enable competitive advantage sustainable since knowledge provides the basis for viable differentiation that is quite cumbersome to duplicate (Curado & Bontis, 2006). Though difficult, the combination and alignment of organization's intangible resources like knowledge is necessary to enhance performance (Martelo-Landroguez & Cegarra-Navarro, 2014) and also, SMEs resilience

Methodology

This study employed a cross-sectional survey design to examine the predictive influence of knowledge management practices on the resilience of small and medium-sized enterprises (SMEs) in Biu, Borno State, Nigeria. The target population comprised owners and managers of registered SMEs operating within Biu metropolis. According to the Borno State Ministry of Commerce and Industry (2023), the total number of registered SMEs in the area is 5,280. Given the relatively large population, the study adopted Yamane's (1967) formula for sample size determination, resulting in a sample size of 372 respondents. A simple random sampling technique was employed to ensure that each SME had an equal probability of selection, thereby enhancing the representativeness and generalizability of the findings. The sampling frame consisted of SME owners and managers, as they are assumed to possess the most comprehensive understanding of their firms' knowledge management practices and resilience strategies. To maintain consistency and legitimacy, only SMEs formally registered with relevant government agencies were considered. Data were collected using a structured, self-administered questionnaire, designed on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The instrument captured respondents' perceptions of knowledge acquisition, knowledge sharing, knowledge application, and organizational resilience.

For data analysis, the study utilized both descriptive and inferential statistical techniques. Descriptive statistics - including means, standard deviations, coefficients of variation, and ranking were employed to summarize and interpret the data. Frequencies and percentages were used to report demographic characteristics of the respondents. Inferentially, Pearson's correlation analysis was used to explore the strength and direction of relationships among the study variables, while

multiple regression analysis was conducted to determine the predictive power of knowledge management dimensions on SME resilience. All analyses were performed using the Statistical Package for the Social Sciences (SPSS), Version 23.

Results of the Findings

A total of 372 questionnaires were distributed to respondents and 299 were returned yielding a response rate of 80% as shown in Table 4.1

Table 1. Response Rate

Particulars	Number of respondents	Percentage
Number of questionnaire distributed	372	100%
Number of questionnaire returned	299	80%
Number of questionnaire not returned	73	20%

Source: Field Survey (2025).

Regression Analysis

A multiple regression analysis was carried out to assess the impact of knowledge management on the performance of SMEs in Biu, Borno State, and to evaluate the statistical significance of the hypotheses at a 95% confidence level and a 5% significance level. This method was employed to test the research hypotheses, analyzing the relationships between the independent and dependent variables. The results of the regression analysis are presented in Table 2:

Model Summary

The model summary shows the summary of the regression analysis as shown in the regression model. Below are the findings:

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.559 ^a	.312	.305	.62289	.312	44.651	3

a. Predictors: (Constant), KAP, KS, KA

The model summary revealed an R value of 0.559, indicating a moderate positive correlation between the predictors and SME resilience. The R-squared value of 0.312 suggests that approximately 31.2% of the variance in SME resilience can be explained by the combined effect of KA, KS, and KAP. The adjusted R-squared of 0.305 confirms the model's robustness, accounting for the number of predictors and sample size. The model was statistically significant ($F(3) = 44.651, p < 0.001$), indicating that the predictors collectively have a meaningful impact on SME resilience.

Analysis of Variance

Table 3 ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	51.973	3	17.324	44.651	.000 ^b
	Residual	114.458	295	.388		
	Total	166.431	298			

a. Dependent Variable: SMER

b. Predictors: (Constant), KAP, KS, KA

The analysis of variance (ANOVA) presented in Table 3 assesses the overall significance of the regression model predicting SME resilience (SMER) based on three knowledge management dimensions: knowledge acquisition (KA), knowledge sharing (KS), and knowledge application (KAP). The results indicate that the regression model is statistically significant, with an F-value of 44.651 and a corresponding p-value of 0.000 ($p < 0.001$). This demonstrates that the model as a whole explains a significant proportion of the variance in SME resilience and that the independent variables collectively provide a better fit than would be expected by chance alone.

Specifically, the regression sum of squares is 51.973, while the residual sum of squares is 114.458, resulting in a total sum of squares of 166.431. The mean square for regression is 17.324, compared to a mean square error (MSE) of 0.388. The large F-statistic (44.651) confirms that the regression model provides a statistically robust explanation for variations in SME resilience. This implies that knowledge acquisition, sharing, and application jointly and significantly contributes to the resilience capacity of SMEs, validating the conceptual model and supporting the hypothesis that knowledge management is a key driver of SME adaptability and performance in challenging environments.

Test for Coefficients

Table 4. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.688	.210		3.283	.001
KA	.311	.060	.302	5.225	.000
KS	.245	.061	.233	4.048	.000
KAP	.184	.058	.169	3.185	.002

a. Dependent Variable: SMER

Note: KA = Knowledge Acquisition, KS = Knowledge Sharing, KAP = Knowledge Application, SMER = SME Resilience.

The regression coefficients presented in Table 4 offer deeper insights into the individual contributions of the predictor variables - knowledge acquisition (KA), knowledge sharing (KS), and knowledge application (KAP) to SME resilience (SMER). All three predictors were found to be statistically significant at the 0.01 levels or lower, indicating that each makes a meaningful contribution to explaining variations in SME resilience. Specifically, knowledge acquisition demonstrated the strongest influence with an unstandardized coefficient (B) of 0.311 and a standardized coefficient (Beta) of 0.302 ($t = 5.225$, $p < 0.001$). This suggests that a one-unit increase in KA is associated with a 0.311 unit increase in SME resilience, holding other variables constant. This result underscores the pivotal role of continuous learning, external knowledge sourcing, and information-seeking behaviour in enhancing SME adaptability and long-term survival.

Knowledge sharing also emerged as a significant predictor ($B = 0.245$, $Beta = 0.233$, $t = 4.048$, $p < 0.001$), indicating that organizations that encourage communication, collaboration, and internal knowledge diffusion are more likely to be resilient. Additionally, knowledge application ($B = 0.184$, $Beta = 0.169$, $t = 3.185$, $p = 0.002$) was found to significantly predict SME resilience, albeit with a relatively smaller effect. This finding suggests that while acquiring and sharing knowledge are important, their true value is realized when they are effectively applied in decision-making and

problem-solving contexts. Collectively, these results highlight that SME resilience is not merely a function of knowledge possession but also of the systematic processes through which knowledge is acquired, disseminated, and utilized within the organization.

Test of Hypotheses

To examine the effect of knowledge management dimensions on the resilience of small and medium-sized enterprises (SMEs), a multiple linear regression analysis was conducted. The model included knowledge acquisition (KA), knowledge sharing (KS), and knowledge application (KAP) as independent variables, with SME resilience (SMER) as the dependent variable. Table 4.4 presents the regression coefficients, standard errors, t-values, and significance levels.

H₁: Knowledge acquisition significantly influences the resilience of SMEs.

The results indicate that knowledge acquisition exerts a statistically significant positive effect on SME resilience ($B = 0.311$, $t = 5.225$, $p < 0.001$). This suggests that the more SMEs engage in acquiring relevant knowledge, the more resilient they become in navigating turbulent business environments. Therefore, H₁ is supported.

H₂: Knowledge sharing has a significant effect on SMEs' resilience.

Knowledge sharing was also found to have a significant positive effect on SME resilience ($B = 0.245$, $t = 4.048$, $p < 0.001$). This implies that the internal dissemination and exchange of knowledge among employees contribute meaningfully to the enterprise's ability to adapt and recover from disruptions. Thus, H₂ is supported.

H₃: Knowledge application has a significant effect on SMEs' resilience.

The analysis further shows that knowledge application significantly predicts resilience ($B = 0.184$, $t = 3.185$, $p = 0.002$). This finding underscores the importance of effectively utilizing available knowledge to implement adaptive strategies and maintain operational continuity. Hence, H₃ is supported.

Overall, the regression results provide robust empirical support for the hypothesized relationships. Each dimension of knowledge management - acquisition, sharing, and application significantly and positively influences the resilience of SMEs. These findings highlight the strategic role of knowledge management practices in enhancing organizational adaptability and sustainability, particularly in security-challenged regions like Northeast Nigeria.

Discussion of Findings

The findings of this study revealed that the three key dimensions of knowledge management - knowledge acquisition, knowledge sharing, and knowledge application significantly influence the resilience of small and medium-sized enterprises (SMEs). These outcomes are not only consistent with existing empirical literature but also theoretically grounded in the Knowledge-Based Theory (KBT) proposed by Nonaka and Takeuchi (1995).

According to the KBT, knowledge is a critical strategic resource that enables firms to build capabilities, gain competitive advantage, and respond effectively to environmental uncertainties. The significant positive effect of knowledge acquisition on SME resilience supports this theoretical premise. As Mor *et al* (2020) and Martinez-Martinez *et al* (2022) note, firms that continuously acquire relevant knowledge are better equipped to adapt during periods of disruption, such as the COVID-19 pandemic. Batra (2022) further emphasizes that the responsibility to obtain knowledge

lies with the entrepreneurs themselves, which echoes the proactive nature of knowledge generation described by Nonaka and Takeuchi (1995) in their dynamic theory of organizational knowledge creation.

The results further highlight the critical role of knowledge sharing, which aligns closely with the socialization and externalization processes articulated in the Knowledge-Based Theory (KBT) (Nonaka & Takeuchi, 1995). This supports the assertion by Zayed et al. (2022) that knowledge stored within organizational systems and repositories must be effectively disseminated among employees to generate meaningful outcomes. Similarly, the findings corroborate the views of Boro (2022) and Munasinghe *et al* (2021), who emphasize that knowledge sharing enhances collaboration and reduces internal organizational tensions. This perspective is reinforced by Kiseli (2016) and Kumar and Babu (2015), who observed that a lack of collaborative knowledge exchange often results in dissatisfaction and disengagement among workers. Moreover, Prasongthan (2022) points out that sharing knowledge across firms within the same industry can serve as a resilience-enhancing mechanism, particularly during periods of widespread disruption. Collectively, these findings validate the KBT proposition that organizational knowledge must be not only generated but also shared, contextualized, and internalized through cooperative learning to support strategic adaptability and resilience.

The study's finding that knowledge application significantly enhances SME resilience is well-supported by prior literature. Lee and Hidayat (2018) argue that unused knowledge holds no practical value, while Schwaiger et al. (2022) link resilience directly to the strategic deployment of knowledge. Mbuvi (2014) similarly emphasizes that applied knowledge strengthens business and operational strategies. This aligns with the internalization process of the Knowledge-Based Theory (Nonaka & Takeuchi, 1995), where knowledge becomes embedded in organizational routines. Thus, the empirical result affirms that resilience is contingent not just on knowledge possession, but on its effective application within organizational contexts.

In sum, the findings reinforce the theoretical proposition of the Knowledge-Based Theory that knowledge is not merely an asset, but a core capability that underpins strategic resilience and adaptive capacity. SMEs that engage systematically in acquiring, sharing, and applying knowledge are more likely to withstand and recover from disruptive events, particularly in volatile environments such as those triggered by the insecurity.

Conclusion

This study has demonstrated that knowledge acquisition, knowledge sharing, and knowledge application each play a significant role in enhancing the resilience of small and medium-sized enterprises (SMEs). Drawing on the Knowledge-Based Theory, the findings affirm that resilience is not merely a function of access to knowledge, but of how effectively that knowledge is acquired, disseminated, and applied within organizational processes. Knowledge acquisition enables SMEs to anticipate and adapt to change; knowledge sharing fosters collaboration and collective capacity-building; while knowledge application ensures that insights are translated into actionable strategies. Collectively, these processes serve as foundational mechanisms through which SMEs develop the flexibility and responsiveness needed to withstand external shocks and sustain operations in turbulent environments.

Recommendations

Based on the study findings, the following recommendations were made:

- i. SME managers should actively invest in continuous learning by attending training programs, subscribing to industry intelligence platforms, and encouraging staff development to ensure timely access to relevant and actionable information that enhances preparedness and strategic foresight.
- ii. Enterprises should institutionalize collaborative practices such as team briefings, peer learning sessions, and knowledge-sharing forums to foster internal communication, reduce knowledge silos, and build collective problem-solving capacity.
- iii. Finally, SMEs must integrate knowledge into core business functions by embedding it in planning, operations, and decision-making processes, ensuring that acquired and shared knowledge translates into concrete actions that support long-term resilience.

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