

Pandemics Knowledge Management and Resilience Building Among Tour Operators in Northern Tanzania

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Abstract

Tourism is vulnerable to pandemics, especially in regions such as northern Tanzania. This study explores how tour operators can enhance resilience through Knowledge Management Theory (KMT) and Resilience Theory (RT). Utilizing qualitative methods, including interviews and observations, the research involved participants, including government officials, tour operators, tour guides, and association leaders. The findings indicate that while operators have pandemic related knowledge, significant gaps exist in information sharing. The key resilience strategies identified include adaptive practices, government engagement, and technology integration. This study underscores the importance of fostering a collaborative culture to improve knowledge circulation and enhance resilience against the impacts of pandemics. Effective knowledge management is essential for addressing health crises, and RT emphasizes the necessity of adaptive strategies. This research provides valuable insights for policymakers and tour operators and contributes to the frameworks of tourism resilience and knowledge management for future studies.

Keywords: Pandemics Awareness, Knowledge Management, Resilience, Tour Operators, Northern Tanzania

1. Introduction

Pandemics have significantly impacted the global tourism industry, resulting in economic losses, job losses, and shifts in consumer behavior. The COVID -19 pandemic highlighted the vulnerabilities within the tourism sector, affecting travel behavior, safety perceptions, and overall business resilience (Hall et al., 2021; Soliku et al., 2021). In Africa, tourism is a crucial economic driver, contributing to GDP and employment; however, the region faces several challenges, such as poor health infrastructure and inadequate financial resources, which exacerbate the impacts of pandemics (Dayour et al., 2020; Lema, 2021; Mwamwaja & Mlozi, 2020). Furthermore, little is known about pandemic knowledge management and resilience building among tourism operators.

Knowledge management (KM) involves systematic handling of knowledge to enhance organizational learning, innovation, and performance. It includes processes such as knowledge creation, sharing, and application (Nonaka, 2009), and involves managing tacit and explicit information when demanded (Cegarra-Navarro et al., 2021). Furthermore, KM enhances resilience since it equips users with the tools and insights needed to respond to shocks, such as pandemics. Resilience is the ability of individuals and organizations to adapt to disruptions and recover from crises (Blackman et al., 2011).

While the tourism sector's vulnerability to pandemics and the importance of KM in crisis management are well documented (Blackman et al., 2011; Iqbal et al., 2023; Jia et al., 2012; Rahmanto, 2021) comprehensive studies on KM practices specific to pandemics in Tanzania, specifically in Northern Tanzania, are lacking. Insights into the unique challenges faced by local tour operators and strategies for building resilience tailored to the regional context are also missing (Lema, 2021; Mwamwaja & Mlozi, 2020).

Tour operators are intermediaries between suppliers and visitors (Holland & Leslie, 2017), and the viability of their businesses is of utmost importance during and after the pandemic (Cavlek, 2002; Do et al., 2022). Pandemics are becoming more diverse and common; thus, better communication is required to make tourism business operators aware and reduce their impact (Dayour et al., 2020). Tsao & Ni. (2016) found that nations that experienced severe pandemic outbreaks were far better prepared. Schwartz & Yen. (2017), show that areas vulnerable to pandemics are better able to withstand the effects than those that only see or hear about them. This underscores the influence of prior pandemic exposure experience on resilience and better preparedness.

Several studies have shown that awareness of health risks and safety measures is crucial for both operators and travelers. Understanding pandemic-related risks helps tour operators develop appropriate strategies to safeguard their businesses and customers, as well as to enhance their resilience (Giddy & Rogerson, 2021; Rahmanto, 2021; Soliku et al., 2021). Resilience in the context of tourism involves not only operational adjustments but also fostering relationships with stakeholders (Jia et al., 2012).

Despite the importance of TOs in tourism sector development, there is a lack of comprehensive understanding of their role in enhancing KM and building resilience against pandemics. Do et al. (2022) found that TOs are susceptible to pandemics because of their inability to handle unexpected declines in demand; being unprepared for a pandemic and not being resilient causes much damage to money, causing business closures and interrupted operations. Focusing on TOs in Northern Tanzania, this study explored KM on pandemic preparedness and resilience. It also strives to understand the challenges faced by TOs when responding to pandemics.

To address this, several research questions are proposed: What knowledge management practices are currently employed by tour operators in Northern Tanzania? How do these practices influence resilience during a pandemic? How can tailored KM approaches enhance the resilience of tour operators? This study aims to contribute to the understanding of the role of KM in enhancing resilience among tour operators and provide actionable recommendations for improving KM practices. The findings will inform policies and strategic planning for the tourism sector in Northern Tanzania. By equipping tour operators with tools to better manage knowledge during crises, this study seeks to foster sustainable tourism practices that can withstand future pandemics and crises, ultimately enhancing the overall resilience of the tourism sector in the region (Bramwell & Lane, 2011). Further, study recommendations may guide focused initiatives, policies, and support plans in Northern Tanzania, thereby improving TOs' pandemic readiness and resilience.

2. Literature Review

Knowledge Management Theory and Resilience Theory were chosen to guide this qualitative study. Several studies have explored KM practices within the tourism industry, emphasizing the role of technology and collaboration in knowledge sharing (Hall et al., 2021; Jia et al., 2012). Knowledge Management Theory (KM) is centered on the procedures for gathering, describing, and distributing knowledge (Lachhab et al., 2022; Wen et al., 2021). The four pillars of Knowledge Management Theory are knowledge-promoting culture, a framework for formalizing knowledge, knowledge access, and knowledge management methodologies and systems (Blackman et al., 2011; Bratianu & Bejinaru, 2021).

Studies indicate that organizations with robust KM strategies are better positioned to adapt to market changes and crises, including health emergencies (Iqbal et al., 2023). While there is substantial literature on KM in general tourism contexts (Iqbal et al., 2023; Zayed et al., 2022; Zieba, 2024), there are limited studies focusing on KM practices during pandemics, particularly in developing countries like Tanzania. This missing information highlights the need for context-specific studies that consider local challenges and opportunities in this area.

Studies indicate that effective KM practices enhance organizational resilience by facilitating rapid information dissemination and fostering a culture of learning (Iqbal et al., 2023; Zieba, 2024). Organizations that leverage knowledge effectively are more likely to identify risks and respond proactively (Ammirato et al., 2021; Iqbal et al., 2023). Despite the link between KM and resilience, scant literature specifically addresses how these concepts converge in the context of pandemics. Further research is needed to explore how KM influences resilience among tour operators in Northern Tanzania and how local practices can be optimized for better outcomes. The literature reveals a growing understanding of KM and resilience within the tourism sector (Lema, 2021; Sobaih et al., 2021); however, significant gaps remain, particularly regarding the specific challenges faced by tour operators during pandemics. This study aims to inform effective strategies that can enhance both KM and resilience in the face of future crises.

Tourism resilience refers to the capacity of tourism systems to absorb shocks and adapt to changing conditions (Dias et al., 2022; Iqbal et al., 2023; Ntounis et al., 2022). Several studies have proposed various frameworks to understand resilience, including adaptive capacity, recovery time, and stakeholder collaboration (Bhaskara et al., 2021; Lema, 2021). Research has shown that resilient tourism businesses can effectively respond to crises, minimizing economic losses and maintaining stakeholder trust (Mwamwaja & Mlozi, 2020; Sobaih et al., 2021). Resilience strategies normally involve diversification of offerings and enhancing customer engagement (Ntounis et al., 2022; Zieba, 2024). Although the concept of resilience is well documented, there are insufficient empirical studies examining resilience strategies in the context of pandemics among tour operators in Northern Tanzania. Understanding how local operators perceive and implement resilience strategies is crucial for effective management (Chebby et al., 2021; Henseler et al., 2022).

3. Methodology

This study was conducted in the Arusha and Kilimanjaro regions, the northern tourist circuit, and the hub of Tanzania's tourism sector (Lema, 2021). The circuit is home to the majority of registered tour operators and receives almost 80% of foreign visitors (Lema, 2021; Mbowe et al., 2021). According to the Ministry of Natural Resources and Tourism report in 2020, there are 907 registered TOs located in northern Tanzania (MNRT, 2020).

Government officials, tour operator association executives, long-serving driver guides, and tour operator businesses were the four categories of participants chosen for this study. Having a valid company license and years of experience in the tour operator sector were the two main criteria used to choose TOs. A minimum of ten years of experience as a guide working with a licensed tour operator is required. A total of thirty-eight participants were engaged, twenty-six TOs, and 12 key informants.

Tour Operators were recruited using the MNRT portal, which annually publishes a list of registered tourist businesses. Based on the selection criteria, a total of 100 tour operators (TOs) were selected out of 907 registered in Arusha and Kilimanjaro. Primary data were collected between June 2021 and January 2022 using interviews and observations. A review of regulations, acts, publications, guidelines, Standard Operating Procedures, and reports on international and national tourism supplemented the collected data. Interviews that lasted for about 40 to 2 hours, were audio recorded and conducted in English at the interviewees' convenience. Three main areas of research on pandemic awareness development were explored: the dissemination of pandemic information, the impact on businesses, and the ability of resilient TOs to withstand the impact. Adherence to health protocols and warning signs in the workplace was also observed. The transcripts and other materials were sent to three experts in the field for coding reliability testing. Using the six procedures outlined by (Braun & Clarke (2006), NVivo 2020 software was used to deductively analyze data based on theory constructs and research questions.

4. Results

4.1 General Information

The data reveal a diverse landscape of tourism participants in northern Tanzania, primarily concentrated in the Arusha and Kilimanjaro regions. Most participants were members of TATO, with 18 operators, while TLTO and TTGA had four and three members, respectively. Ownership was predominantly local, with 20 participants, compared to five foreign participants. The target market was evenly split between international and regional markets, each represented by 14 participants. Main products focused heavily on photographic safaris, offered by 18 operators, followed by mountain climbing and accommodations, with eight and nine offerings, respectively.

In terms of establishment, participants ranged from those founded in 1978 to newer entities established as recently as 2016. The average number of employees varied significantly from as few as six to as many as 450, reflecting a wide range of operational scales. Overall, the data highlight a robust tourism sector in northern Tanzania, characterized by a mix of local and international offerings, diverse products, and varying operational capacities.

About 99% of participants understand pandemics as "unknown or novel disease, a disaster to business, an infectious disease, explosive, causing death, and rapidly spreading across many countries or continents in a short period (Beach, 2010)." However, participants continue to label epidemics as pandemics because of the comparable harm they do to businesses (Wen et al., 2021). The participants' capacity to forecast the years in which these infectious illnesses transpired was indicative of their implicit understanding of these events (**Table 1**).

Table 1 The lists of pandemics experienced and the frequencies of responses

| Name of Pandemic | Year of Outbreak | Frequency |
|------------------|------------------|-----------|
| COVID-19 | 2019 | 38 |
| Swine flu | 2018 | 4 |
| Ebola | 2014 | 38 |
| SARS | 2003 | 9 |

The interview results in Table 2 indicate that tour operators experienced significant impacts from various pandemics, with both COVID-19 and Ebola eliciting 38 responses each, highlighting the major disruptions they caused in the travel industry. In contrast, the 2018 Swine Flu outbreak received only four responses, suggesting that it was perceived as having a lesser impact on travel operations. Additionally, the responses varied among different pandemics, as seen with SARS in 2003, which generated a moderate response of 9, illustrating the differing levels of concern within the tourism sector.

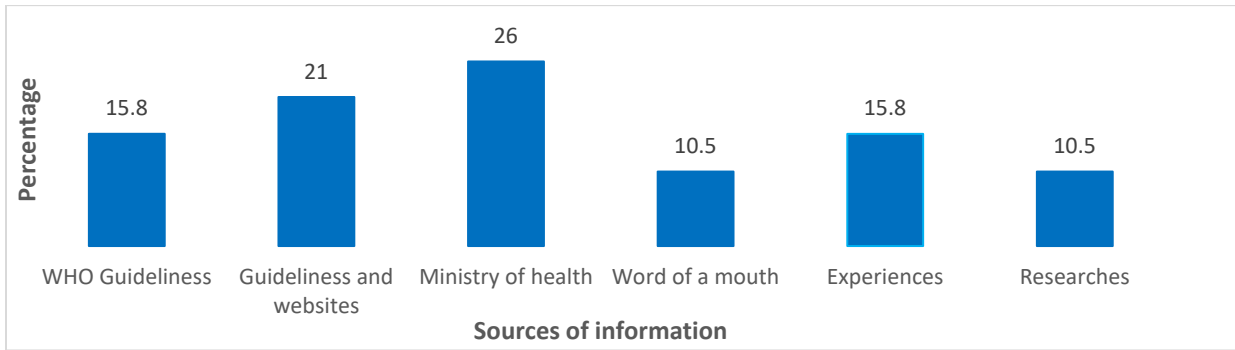
Moreover, 92% of TOs were unprepared to deal with pandemic crises, as only 7 percent of the participants had crisis management plans or teams. These findings demonstrate a deficiency in knowledge management for making informed decisions on the most effective measures to lessen the devastating impact of pandemics.

4.2 Knowledge Management Practices

In northern Tanzania, tour operators (TOs) have implemented various knowledge management (KM) practices to enhance operational integrity and ensure customer safety, particularly regarding health protocols. Knowledge acquisition, as defined by (Ammirato et al., 2021), involves gathering information from diverse sources such as WHO and Ministry of Health guidelines, word of mouth, experiences, TO associations, and research institutions.

TOs emphasized the importance of tacit information gained from personal experience and explicit knowledge from guidelines and reports. As stated by a key informant (KI): *“We train staff to handle pandemics. Governments manage pandemics. The MNRT and the Ministry of Health met with NCAA stakeholders to provide Standard Operating Procedures (SOP) that operators must adhere to” (TA02).*

Figure 1: Sources of Information Acquisition in KM (N=19)

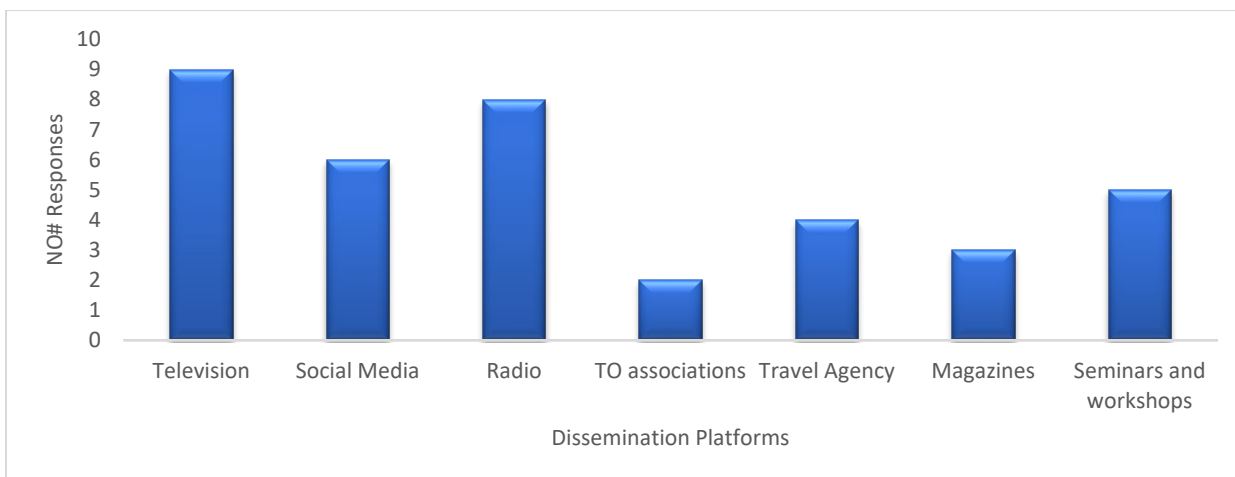


Training sessions were critical for educating staff on health protocols as per the SOP introduced by the MNRT in June 2020.

Participants emphasized the significance of both tacit and explicit knowledge for pandemic awareness (Jia et al., 2012), with media channels like TV, radio, and social media playing a crucial role in information dissemination, as indicated in Figure 3. For example, one participant said, "Many operators utilize social media platforms and online forums to share experiences and updates regarding health regulations and best practices during pandemics"(TAT02).

TOs utilized various channels (internal memos, meetings, training sessions) to disseminate information about the pandemic and its impacts. Engagement with external sources, including government health authorities and industry associations, ensured that staff and clients received accurate information (Wen et al., 2021). Partnerships among stakeholders facilitate resource sharing and crisis management. Regular meetings with government representatives and industry associations were organized to discuss the challenges and develop recovery strategies.

Figure 3: Dissemination of Pandemic Outbreak Information Platforms (N=18)

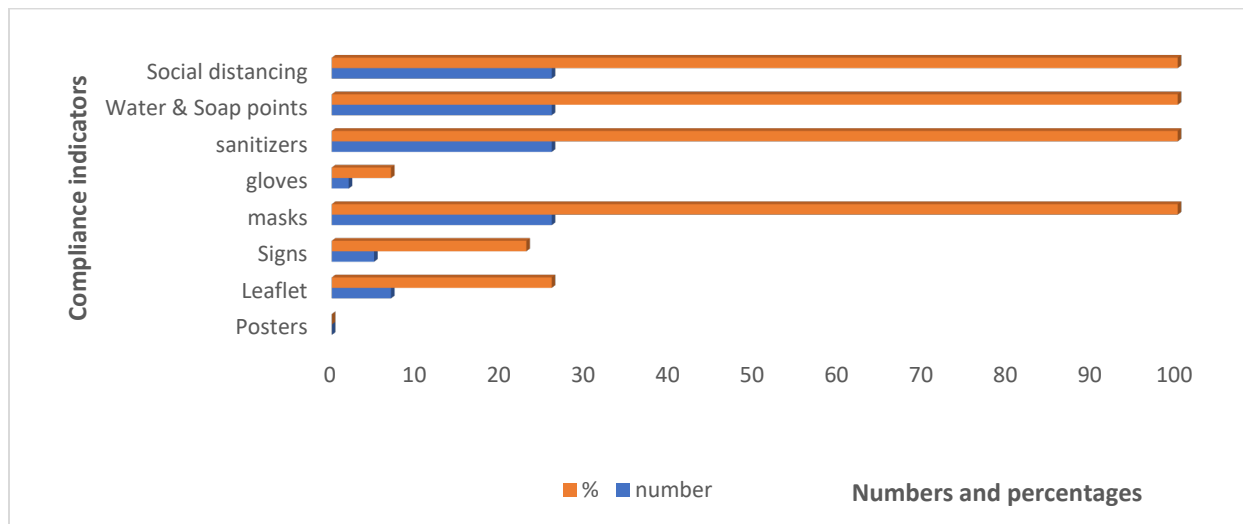


The findings revealed that tour operators in northern Tanzania employed several KM practices to enhance business continuity. Training is emphasized as a critical practice to ensure that staff remain informed about health guidelines and best practices (Iqbal et al., 2023). For instance, one participant commented:

"Regular training sessions on health and safety protocols are conducted to ensure that all staff members are knowledgeable about the pandemic-related guidelines. We want to practice an update training to our team at least once a month because there are a lot of diseases we have actually recognized, and we think we need to update the team so that we can stay safe (TA04).

The application of acquired knowledge was evident in on-site observations, with strict adherence to health protocols, such as mask-wearing and sanitization during tours.

Figure 2: Health Protocols Compliance Observed in Selected Tour Companies' Offices (N=26)



Regular training for various groups, such as mountain guides and hotel operators, was conducted in collaboration with the Ministry of Health and the TATO. Observations indicated almost 100% compliance with health protocols, including social distancing, sanitizing vehicles, and informing clients about COVID-19 measures.

By integrating knowledge acquisition, transfer, and application, TOs were able to enhance service delivery, build client trust, and create more resilient tourism businesses.

4.3 Knowledge Management influence in resilience building

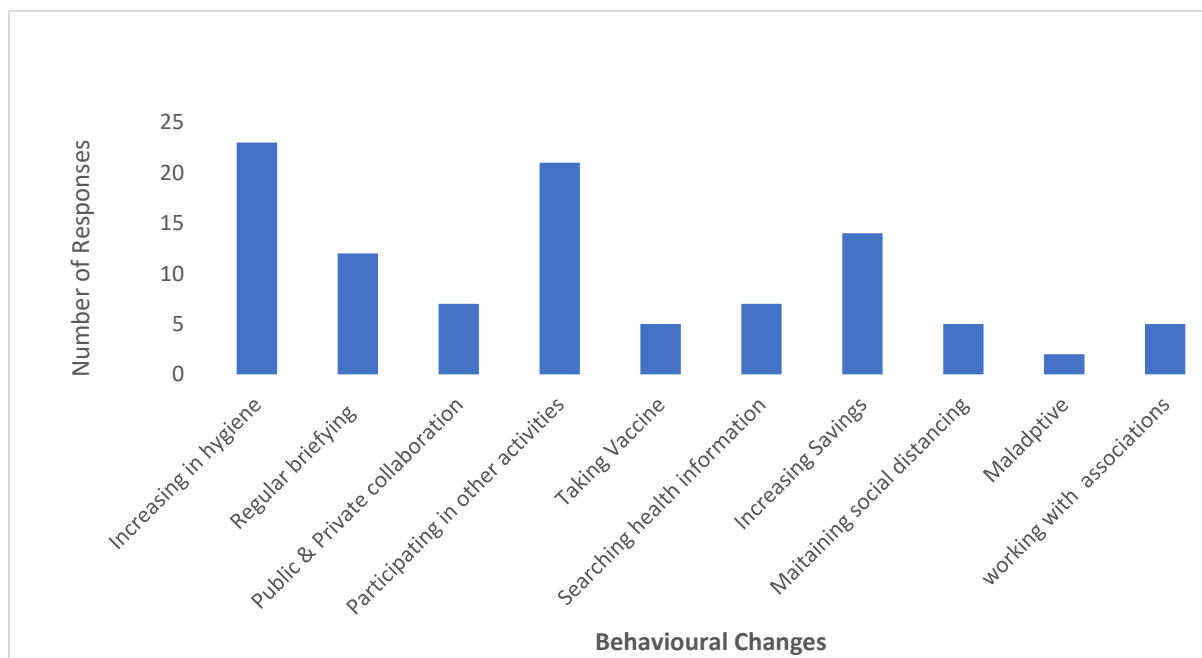
Knowledge management (KM) practices play an important role in enhancing the resilience of tour operators (TOs) during pandemics. By effectively acquiring, transferring, and applying knowledge, TOs can adapt to challenges and maintain operational continuity. The results revealed that TOs utilized several tailored KM approaches and strategies that enhanced their resilience. These approaches include knowledge acquisition from diverse sources, such as government guidelines, industry associations, and media updates. Additionally, TOs disseminated

knowledge to the staff through regular training sessions and internal communication to ensure that all employees were aware of the latest health protocols and operational changes.

Respondents expressed the necessity of applying the acquired knowledge and assessing the effectiveness of measures to adapt as needed. Financial preparedness is critical for survival during pandemics. TOs maintained emergency budgets by having cash reserves to cover operational costs for at least six months. Diversifying investments in sectors such as agriculture and local businesses provides alternative revenue streams during downturns. Engaging with banks to negotiate better loan terms or defer payments during crises is also regarded as an effective approach.

The interviews revealed that TOs implemented various strategies to strengthen their resilience to the operational impacts of the pandemic. Cost-cutting measures included minimizing overheads through staff downsizing or negotiating lower salaries, which helped to maintain financial stability during periods of low income. This behavior emerged following the COVID-19 outbreak, differing from responses to previous pandemics, such as Ebola and SARS, due to the severity of COVID-19.

Figure 4: Lessons Learned and Behavioral Changes



4.4 Tour Operators resilience strategies for business continuity

With international travel restrictions, TOs shifted their focus to the local market, attracting domestic tourists by offering discounted rates and promoting local attractions. This strategy not only kept businesses afloat but also raised awareness among locals about tourism opportunities. The previously neglected domestic market showed tremendous recognition during the COVID-19 outbreak, indicating a better future for facing other pandemics

(Batinoluho, 2022; Mwamwaja & Mlozi, 2020). *With international travel restrictions in place, operators have shifted their focus to local tourists, promoting domestic tourism as a viable alternative (TA05).*

Strict implementation of health guidelines, such as mask-wearing, social distancing, and sanitization, is essential for resilience (Dayour et al., 2020). Training staff in these measures ensured compliance and built trust with the clients. *TOs have developed and implemented SOPs that align with health guidelines from the Ministry of Health and the World Health Organization (WHO). These protocols include measures for sanitization, social distancing, and health screening (LG02).*

Collaboration with other facilities and associations helped TOs share resources and knowledge, reducing costs and improving the delivery of services. *Collaboration with local health authorities and tourism associations enhanced preparedness and ensured access to the latest health information and resources (AR01).*

The shift to remote work has also emerged as an effective strategy, allowing for flexibility and cost savings. *Providing access to training materials that support remote work ensures that staff maintain productivity, and establishing effective communication platforms fosters collaboration among team members, even when working remotely (AR06).* During the COVID-19 outbreak, the Ministry of Health and the MNRT collaborated with TO associations, such as TATO and TLTO, to organize training for tourism business actors. Twenty-seven percent of participants reported greater participation in pandemic training, which focused on developing Standard Operating Procedures (SOPs) for safe operations.

Participants reported changes in their behavior to ensure business continuity and safety, including seeking information about the pandemic, practicing better hygiene, and avoiding physical contact. The findings showed that participants accepted vaccines after receiving accurate information from reputable sources, which enhanced safety and trust among stakeholders.

The study highlighted that 31% of tour operators offered diverse activities, such as photographic safaris, mountain climbing, cultural tourism, and community-based tourism, to meet clients' needs. Additionally, 98% of the participants were members of tourism associations, which facilitated collaboration.

Gathering and analyzing data on local tourism trends enables operators to pivot their offerings effectively, tailoring services to meet the needs of domestic travelers, and identifying and targeting new markets, including domestic tourism, can help mitigate the impact of international travel restrictions (TAT01).

4.5 Practical bottlenecks for resilience building

Despite the positive mechanisms identified, challenges remain. Access to training and technology was limited, and many TOs lacked awareness of the importance of KM in the agricultural sector. Operators expressed difficulty in accessing knowledge from government sources, which hindered effective knowledge sharing during crises. Information is often provided in scientific language, making it difficult for TOs to interpret without medical personnel (Wen et al., 2021).

Furthermore, unfriendly laws and regulations that do not consider adverse conditions are noted as significant challenges. Respondents indicated that the government could have offered more support, particularly regarding timely information and financial assistance, during the pandemic.

These findings underscore the importance of tailored KM approaches in enhancing the resilience of tour operators during pandemics (Do et al., 2022). By adopting strategies such as shifting market focus, implementing health guidelines, and collaborating with stakeholders, TOs can better navigate challenges and ensure operational continuity.

Through effective knowledge management practices, tour operators can respond to immediate challenges and build a robust framework for long-term resilience, ensuring they are better prepared for future disruptions. **Table 3** provides specific adaptive strategies and their implications for enhancing resilience in the face of ongoing uncertainties.

Table 2 Adaptive strategies

| <i>Research Question</i> | <i>Documents</i> | <i>Theme</i> | <i>Explanation</i> |
|---|---|--------------------------------|--|
| <i>What knowledge management practices are currently employed by tour operators in northern Tanzania?</i> | Tanzania Tourism Policy 1999, The Tourism Act No. 29 of 2008, URT MNRT National Standard Operating Procedure 2020 | Knowledge Acquisition | Highlights sources like government frameworks, community engagement, and health protocols. |
| | | Dissemination | Discusses channels such as government bodies and international organizations for knowledge spread. |
| | | Application | Focuses on crisis management plans and diversification of tourism products for resilience. |
| <i>KM influence in resilience during pandemics/how can tailored KM approaches enhance resilience in tour operators?</i> | COVID-19 Business Recovery and Sustainability Plan June 2020, UNWTO June 2020, Comprehensive COVID-19 Recovery and Sustainability Plan for Tourism Sector in Tanzania, 2020 | Adaptive Strategies | Identifies cost-cutting, remote work, and market shifts as strategies for resilience. |
| | | Knowledge Management Influence | Discusses enhanced preparedness, collaboration, and innovation through effective KM practices. |

| | | | |
|--|--|--------------------------------|---|
| <i>How knowledge is collected and disseminated for pandemic resilience</i> | URT TA National Standard Operating Procedure 2020, WHO Guidelines 2017, The Disaster Management Act 2015 | Knowledge Collection | Describes collection methods like SOPs and global guidance for structured knowledge acquisition. |
| | | Knowledge Dissemination | Covers training, collaboration between sectors, and real-time data usage for effective dissemination. |
| <i>How tailored KM approaches enhance resilience in tour operators</i> | Various Training and Capacity Building Documents | Customized Training | Emphasizes targeted training and real-time information sharing for effective adaptation. |
| | | Innovation in Service Delivery | Encourages innovation in offerings and risk management frameworks to enhance adaptability. |

5. Discussion

This study explores the critical role of knowledge management (KM) in enhancing the resilience of tour operators (TOs) in Northern Tanzania during pandemics. The findings reveal that TOs employ various KM practices essential for navigating the unique challenges posed by global crises such as COVID-19. The results indicate that TOs in Northern Tanzania effectively utilize knowledge acquisition, transfer, and application to adapt to changing circumstances. Knowledge acquisition involves gathering information from diverse sources, including government sources, industry associations, and media updates. Knowledge management theory highlights the significance of creating, sharing, and utilizing knowledge to foster innovation and enhance decision-making (Toubes et al., 2021). TOs effectively gather information from various sources, such as government guidelines and industry associations. This finding supports (Blackman et al., 2011), who argue that destination marketing organizations (DMO) must manage knowledge across diverse stakeholders to respond effectively to crises and emphasize the significance of both explicit and tacit knowledge in organizational adaptation and survival. Throughout the pandemic, operators that cultivated collaborative networks were better positioned to exchange best practices and resources, demonstrating that collective knowledge can greatly improve adaptive capacity, as explained in the following documents: *COVID-19 Business Recovery and Sustainability Plan June 2020 by TANAPA*, *UNWTO June 2020*, and *Comprehensive COVID-19 Recovery and Sustainability Plan for the Tourism Sector in Tanzania, 2020*.

Knowledge transfer is equally crucial to ensure that the acquired knowledge reaches all staff members. The emphasis on effective communication underscores the importance of disseminating health and safety protocols, as insisted on in several documents during content analysis: *National Standard Operating Procedure 2020*, *WHO Guidelines 2017*, and *The Disaster Management Act 2015*. By training staff on these protocols, TOs foster compliance and build trust with clients, which is essential for maintaining operational continuity in the TBS. The efficient dissemination of health protocols through training ensures that staff are well informed, aligning with (Jia et al. (2012), who insisted on the importance of continuous communication for enhancing adaptability during crises. The notion of DMOs as knowledge brokers illustrates how effective knowledge transfer can facilitate compliance and build client trust.

The findings also demonstrate that effective KM practices significantly enhance the resilience of TOs, as indicated in **Table 3**. By actively acquiring and applying knowledge, TOs have demonstrated their ability to adapt to the disruptions caused by the pandemic. Financial preparedness emerged as a critical strategy, with operators maintaining emergency budgets and diversifying revenue streams to ensure sustainability, as reinforced by Stolarek-Muszyńska & Zieba, (2022) argue that crisis management strives for strong financial bases, which must include proactive financial strategies and contingency planning. This approach reflects the broader trend in the tourism sector, where resource limitations can hinder effective KM adoption (Muoki, 2021). The study revealed that the active use of acquired knowledge enhances service delivery, supporting the findings of (Poo-Udom, (n.d.). that emphasizes KM's transformative potential of KM in crisis management. This implies that organizations that implement KM strategies can improve compliance and foster greater customer loyalty.

Moreover, the study highlights that tailored KM approaches are vital for improving resilience. Recommendations include engaging in scenario planning and fostering partnerships with health authorities to enhance knowledge sharing and preparedness for future pandemics. Developing structured KM frameworks that integrate tacit and explicit knowledge will support adaptive strategies and improve response effectiveness (Hendhana et al., 2024; Kideghesho et al., 2021). Key adaptive strategies include cost-cutting measures, shifting focus from international to local markets, and implementing health guidelines (Amani & Ismail, 2022; Paraskevas et al., 2013). These strategies reflect the necessity for operators to move beyond a "business as usual" approach and adopt strategic interventions that foster recovery (Amani & Ismail, 2022).

The findings insisted on customized KM strategies, such as collaboration with health authorities, other facilities, and associations, which has been identified as a vital strategy for sharing resources and providing training, which enhances the overall capacity of operators to respond to challenges (Chebby et al., 2021; Damiasih, 2025; Kideghesho et al., 2021; Lema, 2021), consistent with Racherla & Hu (2009) framework, their research highlights the necessity of cooperative networks for enhancing crisis preparedness. Furthermore, adherence to health and safety guidelines is crucial for restoring trust among tourists, highlighting the importance of structured standard operating procedures (SOPs) (Rahmanto, 2021; Soliku et al., 2021).

Despite these strengths, challenges remain. Many TOs encountered bureaucratic hurdles in accessing government resources and training, which hindered the adoption of structured KM. This barrier was similar to Harries (2021), who emphasized that effective knowledge sharing requires supportive organizational structures and processes, as well as the need for ongoing stakeholder engagement. This reflects a common theme in the tourism sector, where resource limitations can impede effective knowledge management (Lachhab et al., 2022; Zieba, 2024). However, the study also emphasizes that diversifying offerings to include domestic tourism allowed TOs to remain viable during international travel restrictions (Do et al., 2022; Giddy & Rogerson, 2021). This shift mitigated the impacts of reduced international tourism and strengthened ties with local stakeholders (Mwamwaja & Mlozi, 2020; Sigala, 2020).

5.1 Theoretical Contributions

This study contributes to the theoretical landscape by integrating Knowledge Management (KM) and Resilience Theory (RT) to demonstrate how effective KM practices enhance organizational resilience among tour operators in Northern Tanzania during pandemics. It offers context-specific insights into the unique challenges faced by local operators, expanding existing KM frameworks by identifying critical processes for knowledge acquisition, sharing, and application that strengthen adaptive strategies for crisis management. Additionally, this study highlights the gaps in knowledge sharing that impede resilience, providing empirical evidence linking KM to

crisis preparedness while laying the groundwork for future research in this area. This integration enriches both the theoretical discourse and practical applications of sustainable tourism.

5.2 Practical Implications

This study offers valuable practical implications for tour operators, policymakers and stakeholders in Northern Tanzania's tourism sector. By emphasizing the importance of effective Knowledge Management (KM) practices, the findings encourage tour operators to establish structured systems for knowledge acquisition, sharing, and application. Regular training sessions on health protocols and crisis management can empower staff and enhance their preparedness for future disruption. Additionally, fostering collaboration with government health authorities and industry associations can facilitate timely access to accurate information, enabling operators to make informed decisions and adapt to evolving challenges during pandemics.

For policymakers, the insights from this study can guide the development of supportive frameworks that enhance resilience in the tourism industry. Implementing policies that promote knowledge sharing and provide financial assistance to operators during crises can help mitigate the impacts of future pandemics. Furthermore, advocating for the establishment of centralized knowledge hubs can enhance communication between tour operators and regulatory bodies, ensuring that best practices and health guidelines are effectively disseminated to all stakeholders. By integrating these practical recommendations, stakeholders can create a more resilient tourism ecosystem capable of withstanding future crises and promoting sustainable practices in the region.

5.3 Limitations and Future Research Recommendations

This study had several limitations that may have affected its generalizability. First, the qualitative nature of the research, while providing in-depth insights, limits the ability to quantify the impact of Knowledge Management (KM) practices on resilience across the broader tourism sector. Additionally, the focus on Northern Tanzania may not capture the diverse challenges faced by tour operators in other regions or countries, potentially limiting the applicability of the findings to other areas. Furthermore, reliance on self-reported data from participants could introduce biases, as respondents may understate or overstate their knowledge and crisis management capabilities. Finally, the study's timeframe, primarily covering the peak of the pandemic, may not represent long-term adaptations and resilience strategies.

6. Conclusion

To enhance resilience among tour operators in Northern Tanzania, implementing robust knowledge management systems is essential. Establishing centralized knowledge hubs will facilitate the sharing of pandemic-related information, guidelines, and best practices among the operators. Regular training programs focusing on crisis management and health protocols will empower staff with the necessary skills to navigate future challenges effectively. Additionally, fostering partnerships with local health authorities and tourism associations will strengthen collaboration, enable resource sharing, and enhance overall preparedness for potential crises.

Financial management strategies are equally important for building resilience. Tour operators should be encouraged to create emergency funds to sustain operations during downturns and diversify their revenue streams by investing in domestic tourism and local businesses. This approach mitigates the reliance on international visitors and helps operators remain viable during global disruptions. Utilizing technology for communication and

training will also ensure that all staff members have continuous access to vital information and resources, further strengthening the operational integrity.

Finally, advocating supportive policies is crucial for the sustainable recovery of the tourism sector. Engaging policymakers can help secure better access to information, financial assistance, and training resources for tour operators during crises. Developing comprehensive crisis management plans tailored to the unique challenges faced by the tourism industry will ensure that operators are well prepared. By integrating these strategies, the tourism sector in Northern Tanzania can build a resilient framework capable of adapting to and overcoming.

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