

Impacts of pandemic outbreaks on Healthcare Supply Chains: Lessons from Covid-19 in developing nations

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1. Introduction

Healthcare is one of the most important and basic necessity of a human being. We have witnessed in recent times how COVID-19 has produced enormous strain on the healthcare supply chains worldwide and thereby caused shortages of the necessary healthcare products and services (Finkenstadt and Handfield, 2021). The supply chain disruptions further necessitates the need of building resilient healthcare supply chain which is one of the most important aspects for the prosperity and well-being of the nation (Zamiela et al. 2022).

The central debate of the study revolves around the enablers of the healthcare supply chain resilience that can authentically enhance the resilience in the healthcare supply chain to minimize the disruptions caused by the pandemic. Moreover, how these enablers can explain resilience, and under what conditions do these enablers have differential results? Following the arguments of some scholars' visibility, trust, leadership, and culture can significantly improve resilience in the healthcare supply chain.

2. Research objectives and research questions

Most of the studies have focused on building supply chain resilience against the crises resulting from man-made or natural disasters. However, humanity has not faced such an unprecedented crisis for decades which creates the need for a theory that helps explain the healthcare supply chain resilience resulting from the pandemics so that in the future the healthcare supply chain is resilient enough to mitigate such disruptions resulting from the pandemics. Craighead et al. (2020) also have expressed the need for theory-focused research to examine the supply chain management issues resulting from pandemics such as COVID-19. Hence the **main objectives** of the thesis are:

- a) *To provide operational definitions of healthcare supply chain management and healthcare supply chain resilience.*
- b) *To develop and validate a theoretical model to explain how to build resilience in the healthcare supply chain during pandemics.*

Inspired by Whetten (1989) who proposed What and How model, I propose three **research questions** as:

RQ1: What are the distinct and combined effects of visibility, and swift trust on the healthcare supply chain resilience?

RQ2: What are the effects of visibility and swift trust under the mediating effect of crisis leadership?

RQ3: How does the national culture moderate the paths joining visibility/ swift trust and crisis leadership?

3. Literature Review

3.1 Healthcare supply chain

Healthcare is one of the basic entities to ensure the smooth operations of all activities that contribute to the nation's economy. The governments of all countries significantly invest in their healthcare systems to provide quality patient care. In fact, the infrastructure of the healthcare systems often differentiates developed economies from developing economies (Braa et al. 2007). The healthcare supply chain is often considered a complex system that manages the flow of products and desired services to fulfil the need of the healthcare service providers to take care of the patient (Polater et al. 2014). The healthcare supply chain involves various stakeholders to manage the effective and efficient flow of raw materials and finished products, information, and funds and the role of various stakeholders in managing the flows is equally important. There exists a rich body of literature on the healthcare supply chain. In

totality, the literature provides how the roles of the various stakeholders play an important role in the effective functioning of the healthcare supply chain, and the role of trust and transparency are often considered pivotal for effective coordination during the emergencies such as the COVID-19 crisis (Love et al. 2021; Golan et al. 2021; Zamiela et al. 2022).

3.2 Healthcare supply chain resilience

The management literature defines the ability to bounce back to the original state as “resilience” (Ponomarov and Holcomb, 2009). The concept of resilience is highly diversified and often carries different meanings in different disciplines. Scholars often view the concept of resilience as “multidimensional” and “multidisciplinary” (Ponomarov and Holcomb, 2009; Tukamuhabwa et al. 2015). Healthcare supply chain resilience in recent times has gained significant importance due to its critical nature in terms of quality and safety in delivering patient care (Mandal 2017). Sinha and Kohnke (2009) noted in their study that the gap between the growing demand and the supply of high quality, at the right cost, at the right time, and at the right place is increasing significantly in both developed and developing economies. Mandal (2017) argues how the hospital and their healthcare supply chain partners must build capabilities to minimize the risk of supply chain disruptions in healthcare items due to disasters.

4. Methodology

The literature focusing on the adoption of methods and data collection approaches differs significantly. Despite the rich body of literature available in the field of Healthcare supply chain, theory-driven empirical studies or mixed methods are limited. To address the stated research questions in above section (2), I intend to adopt mixed method approach. Boyer and Swink (2008, p. 343) argue that “a body of research made up of a variety of research methodologies is not unlike a diversified portfolio of financial holdings. The collection is more likely to yield highly productive outputs with lowered risks (in this case, lowered risk of biased findings)”. Hence, in the line with Boyer and Swink (2008), the use of mixed methods such as the qualitative approach to operationalize the constructs and develop the multi-respondent survey-based instrument to reduce the biases.

Qualitative semi-structured interviews will help refine the theoretical model and further incorporate some modifications in the theoretical model. To validate the theoretical model and further test the research hypotheses, I propose to develop a multi-respondent questionnaire which will be pre-tested. Once the questionnaire is pretested, I propose to send through online to the procurement manager of the hospitals and the healthcare staff members involved in patient care to reduce the biases following Dillman (2011) total design method. Finally, once target data is obtained, I will perform statistical analyses using variance-based structural equation modelling.

5. Expected outcome

The study is likely to offer significant contributions to the theory and provide enough insights so that health procurement managers and staff could effectively better coordinate to tackle such future unprecedented crises that lead to shortages of critical healthcare equipment. I further classify expected contributions into two sections.

5.1 Theoretical contributions

- a) In this study, I propose to offer an operational definition of the healthcare supply chain. Further, I propose to develop the operational definition of the healthcare supply chain resilience construct.
- b) The study findings help contribute to the relational view (Dyer and Singh, 1998), upper echelon theory (Hambrick and Mason, 1984) and national culture (Gupta and Gupta, 2019) integrated perspective to explain the healthcare supply chain resilience.

5.2 Managerial implications

As we are all aware that hospitals and health care providers have experienced severe shortages of personal protective equipment (PPE), medicines, and oxygen cylinders during the pandemic resulting from COVID-19. This situation has caused severe illness to the healthcare staff and left many patients suffering from severe breathing problems unattended due to shortages of necessary equipment. Hence, our study is likely to provide some guidance to the healthcare sector to work on:

a) how to improve information visibility; b) how to improve swift trust during the crisis and how to improve coordination among various healthcare staff to minimize the confusion resulting from information asymmetry; c) how to identify crisis leaders and their role during the crisis time; d) how to improve resilience in the entire healthcare supply chain

In its totality, the COVID-19 pandemic seriously exposed the fragilities in supply chains and offers a unique opportunity for decision-makers to rethink their supply chain design and understand how the future supply chain can cope with unprecedented situations like pandemics.

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