Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 5s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Analyzing the Barriers of Logistics Supply Chain Risk Management in Emergency Response, The Mediating Role of Supply Chain Humanitarian Aid

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Cite this paper as: Ankur Sharma, Pankaj Agarwal, Shaveta Ahalwat, Vikas Jogpal, Rahul Singh, (2025) Analyzing the Barriers of Logistics Supply Chain Risk Management in Emergency Response, The Mediating Role of Supply Chain Humanitarian Aid. *Journal of Neonatal Surgery*, 14 (5s), 440-456.

ABSTRACT

Purpose: This research aims to investigate the effect of SCRM on the ER capabilities based on the Gaza strip and focuses specifically on humanitarian relief supplied within conflict-zoned places.

Design/Methodology/Approach: The research employs empirical information and sophisticated analytical tools which are used to understand the complicated activities in supply chain operations under unique conditions that come with Gaza's socio-political structure. The data was collected in a field survey among 150 employees working in humanitarian organizations within the target area.

Findings: The research shows a statistically insignificant relationship between effective supply chain risk management and emergency response in Gaza. It also reiterates the difficulty faced by humanitarian aid to overcome logistical and infrastructural bottlenecks. The presence of UNRWA and ICRC organizations comes significant in connecting supply chain gaps hence to improve the general resilience and responsiveness among an emergency operation

Practical Implications: The findings provide actionable offer policy and operationally relevant recommendations for strategic supply chain management. To Increase the efficiency of response, it is also necessary to improve collaboration between supply chain managers and aid organizations enhancement of emergency response abilities.

Originality/Value: This research provides valuable insights into how supply chain risk management operates in conflict zones, one of the frontiers for humanitarian aid.

Keywords: *Emergency Response, Supply Chain Humanitarian Aid, Supply Chain Risk Management, Risk Identification, Monitoring and Response.*

1. INTRODUCTION

The Gaza Strip is an area with multiple historical backgrounds and political struggles and has ironically gone through immense troubles years before the fighting started on 7 October 2023. Before the recent flare-ups, Gaza was known for its abundance of cultural diversity and resilient people fighting to live on despite their trials by fire (Buheji, 2024).Yet, for many years on end, the region has been torn by conflict after conflict creating a landscape that is engaging in terms of its societal and infrastructural makeup.(Jaradat et al., 2024) A strict blockade has been observed in Gaza since 2006, limiting the movement of goods, services and people. The prolonged siege deepens the pre-existing socio-economic gulf as accessing vital resources becomes even more restrictive, thus hindering economic progression. (Milton et al., 2024) The blockade has presented a major obstacle to the reliability and cost-effectiveness of supply chains, resulting in their inability to consolidate Gaza's population. One of the additional challenges faced by supply chain dynamics in Gaza is the risks associated with operating within a conflict zone. Challenges of supply chain risk management in Gaza. (Farhat et al., 2024)As mentioned earlier, the situation is not ideal in terms of infrastructure damage, and predictions regarding resource access are very dampened with further unpredictability since while actually on the ground conducting supply operations security threats loom around all times. (Heaslip et al., 2024)A dearth in emergency response facilities is compounded by the continuous fighting that plagues Gaza. The consequences of the wars have placed enormous stress on local infrastructure, healthcare services and other basic facilities which has hampered effective emergency response in the region. (Rezeq et al., 2024)This vulnerability underscores the necessity of extensive humanitarian aid operations to minimize crises in Gaza's population.

Israel's current war on Gaza, continuing since October 7th is unprecedented and will take decades to rebuild says The World Health Organization (Bonfanti et al., 2024). This study focuses on how the Supply chain risk management mediation role through humanitarian aid contributes to enhancing Gaza's emergency response capabilities as a region that has found itself under conflict turmoil from time. To that end, the research explores supply chain management challenges under conflict conditions including logistics bottlenecks and damages due to infrastructure destruction or security risks. (Rejeb & Rejeb, 2020) Humanitarian aid roles of the United Nations Relief and Works Agency (UNRWA) as well as ICRC in response to these challenges will be examined. This study aims to address the following research questions:

RQ1. How does supply chain risk management impact emergency response capabilities in Gaza? RQ2. What mediating role does supply chain humanitarian aid play in enhancing emergency response effectiveness in conflict zones?

This study aims to draw on both field data and existing literature, which can be further empirically investigated in a bid to inform strategies for improved emergency response capabilities in Gaza. (Chukwuka et al., 2023) It provides key findings for humanitarian aid practitioners and policymakers to ensure a more robust analysis of supply chain resilience, thus minimizing negative impacts due to conflicts on vulnerable populations. Research also seeks to provide empirical evidence and real data to inform policymakers on one hand while advocating for policy in support of ensuring a durable-able supply chain within conflict zones.

2. LITERATURE REVIEW

Supply Chain Risk Management plays a significant role in making supply chains more resilient, especially in conflict areas such as the Gaza Strip (Hatamlah et al., 2023). This involves systematically identifying, assessing, and relieving risks that disrupt supply flows of life-sustaining goods. Within SCRM, a political situation with ongoing conflicts and regular humanitarian crises like Gaza, at best or worst case, has an emergency response organized within a short time. (Allahham et al., 2024)The combination of this brings risk assessment, proactive risk management, and real-time monitoring and response capabilities in combination to reduce the impact resulting from infrastructure damages or following costs arising because regulatory obligations wanted to be met or security threats facing these companies. Recent studies on Supply Chain Humanitarian Aid integration have developed the SCRM with new requirements to respond fast by deploying necessary supplies and services for suffering populations.(Jawabreh et al., 2023) It also assists in maintaining supply chain resilience actions owing to sustainable humanitarian work as an Sustainable Procurement policy response-based support approach aligned with current field operations.

Monitoring and Response Monitoring and Response: SCRM adaptive Gaza is fundamentally about being able to quickly and efficiently address new risks or crises; therefore, conflict areas need efficient monitoring and response approaches. (Zaqout et al., 2024)These approaches are necessary to collaborate more with humanitarian organizations such as UNRWA or the ICRC using crisis management mechanisms, tools and resourcing capabilities.

Risk Identification and Risk Assessment: Risk Assessment: as supply chain activities are responsible for breeding risks so SCRM will help bring the real picture of whether or not they understand this fact as literature from within Gaza focused on the importance of developing specific, culturally grounded and socio-politically, economically. Predictive modeling, scenario planning and sensitivity analysis were also considered by (Karmaker & Ahmed, 2020) as enablers to effective risk assessment in conflict zones for the purpose of disruption prediction which is a key factor when it comes scenario based or evidence driven decision making around proactive mitigation (Emrouznejad et al., 2023). To ensure the systematic specifically in Gaza with developed system, that certainly worries over identification of danger by creating new areas for geopolitical strains (Milton et al., 2024).

Supply Chain Humanitarian Aid: Supply Chain Humanitarian Aid: It Provides critical logistics services of medical supplies and relief goods to speed the response for an event such as a crisis. In the community of humanitarians such as UNRWA, and ICRC is a significant place in conjunction with the efforts to coordinate humanitarian aid supports for addressing gaps on healthcare delivery including support accessing care & rehabilitation infrastructure (Dennehy et al., 2021). The interventions are not only direct responders to acute humanitarian needs; they also act as multipliers by strengthening supply chains, with their socio-economic empowerment and development activities protecting business continuity during crises (Rezeq et al., 2024).

Emergency Response: Emergency Response: In conflict regions means doing a supply chain response plan, but at the same time demands enormous flexibility and resilience to manage successful emergencies & guarantee transit of urgent aid for needy populations. (Zaqout et al., 2024) say that research shows a natural disaster plan enabled the organization to maintain operations, provided they have agile logistics and ready-to-deploy capabilities going hand-in-hand with engagement from other humanitarian agencies. The long conflict and humanitarian crisis in Gaza make it necessary for supply chain systems, which operate with initiate consideration of variable conditions, to serve as critical support (Response, 2024).

Conceptual Model, Resource Dependency Theory (RDT):

Competing in a contested zone such as Gaza, resource-dependent supply chains rely upon the outside available resources to cope with turbulence and support survivability (Agyabeng-Mensah et al., 2020); however, Resource Dependency Theory offers an applicable lens for understanding this organizational, economic reality. Geopolitical tensions and infrastructure vulnerabilities in times of coordinated economic warfare, supply chains in Gaza face difficulties keeping these functions through ongoing crises - becoming increasingly reliant on external support for survival. RDT also provides a blueprint for how to strategically incorporate humanitarian aid resources into supply chains to reduce risks during border closure, stockouts and security incidents. (Gelderman et al., 2020)This guarantees business continuity measures to deliver life and welfare services like food, water, fuel and medicine which are vital for the populations affected. In addition, RDT analysis focuses on how strong and dependable partnerships among humanitarian agencies like UNRWA or ICRC and local supply chains drive capabilities of rapid response times when adapting to resilience. As a result, RDT denotes strategic consistencies between operational resources that fit external availability relevant to crises supply chain orientation, thus investigation shows that SCRM practices are reshaped by Risk management Supply Chain operation advantage(Valashiya & Luke, 2023).

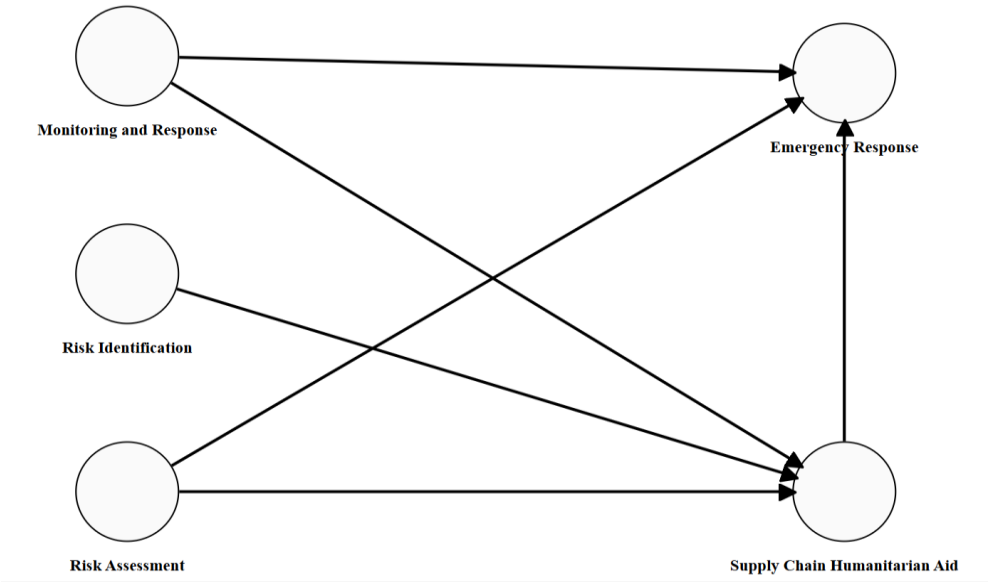

Figure1: Model of The Study

Hypothesis development:

Monitoring and Response and Supply Chain Humanitarian Aid

In the humanitarian aid supply chain - monitoring and response have become essential and compliance-driven chunks of Gaza. By employing effective monitoring, an organization gathers and analyzes real-time data, which allows it to quickly identify any supply chain issue or risk (Judijanto et al., 2024). This capability is critical in timely crisis response because it allows humanitarian assistance to be delivered faster and more specifically and urgently targeted at the needs of populations(Mashuri et al., 2022). This monitoring and response mechanism alarm makes our supply chain system more tolerant of unprecedented issues or chaos, which is vital in running a continuous flow of required goods and services. (Baycik & Gowda, 2023)The monitoring of the protection status in Gaza, as an unstable political environment and erratic supply chain interruptions, would not be uncommon. (Forslund et al., 2022)It helps to mitigate the impact of such disruptions so that humanitarian organizations can adapt operations quickly and keep aid delivery responsive, continual and adapted at pace in light of ongoing regional challenges. According to the discussion above, we propose the following hypotheses:

H1: Monitoring and Response positively influence Supply Chain Humanitarian Aid.

H2: Monitoring and Response positively influence Emergency Response.

Risk Identification and Supply Chain Humanitarian Aid.

Risk identification is of utmost importance for the efficient and effective supply chain of humanitarian aid, especially in emergency response inside the Gaza Strip(Emrouznejad et al., 2023). By orderly identifying risks, such as disruptions in supply chains, logistics challenges, and security threats, humanitarian organizations can plan to manage them before they materialize into real risks. (Jawabreh et al., 2023) In the conflict region, which suffers from ongoing war and political instability, a risk-centric approach to planning means humanitarians should be able to expect the unexpected in order they

lessen their impacts or divert whatever losses well before they become a tendency. (Golan et al., 2020) Therefore, the identification of risk contributes directly to the provision of safety and robustness in a process, allowing supply chain reliability just occur when planning deliver humanitarian aid more consistently. (Golan et al., 2020)This work suggests that exhaustive risk identification may be a critical first step in which humanitarian supply chains could build more agile and adaptive emergency response mechanisms in such complex environments to assist Gaza-based communities (Jaradat et al., 2024). In light of the preceding discussion, we suggest the following hypotheses:

H3: Risk Identification positively influence Supply Chain Humanitarian Aid.

H4: Risk Identification positively influence Emergency Response.

***Risk Assessment and Supply Chain Humanitarian Aid*:**

The effectiveness of supplies in the Gaza Strip is completely different from other administrative landscapes because it belongs to an emergency response system risk assessment(Preston et al., 2021). Prioritizing and addressing the most pressing threats can be done by assessing the likelihood and immediate impact of such geopolitical instability or supply chain disruptions, either logistical constraints, wherever possible., we suggest the following hypotheses:

H5: Risk Assessment positively influence Supply Chain Humanitarian Aid.

H6: Risk Assessment positively influence Emergency Response.

***Supply Chain Humanitarian Aid and Emergency Response*:**

Supply chain humanitarian aid can significantly contribute to the optimal emergency response, which is of extreme importance on a difficult ground in the conflict region(Zaqout et al., 2024). Supply chain humanitarian aid is critical in providing timely and effective delivery of key goods and services to meet the immediate needs of affected populations during a crisis. (Response, 2024)By integrating supply chain management with emergency response, supplies quickly get into the system for quick mobilization of resources and delays are minimized to make relief operations more efficient. (Son et al., 2024)In Gaza the precarious nature of supply chains is exacerbated by conflict and blockades - being able to adapt rapidly in order to ensure that humanitarian aid reaches those in need can make all the difference. Efficient supply chain humanitarian aid meets the immediate needs of a population while also laying the groundwork for long-term recovery and resilience building. (Atieh Ali et al., 2024) This is why the mutual relationship between supply chain humanitarian aid and emergency response strategies are key to reduce disasters impact, where delivering aid efficiently will be sufficient by reach out a significant population as fast and trustable that may influence maximizing disaster relief power in region., we introduce the following hypotheses:

H7: Supply Chain Humanitarian positively influence Emergency Response.

3. METHODOLOGY

Here, we surveyed 150 employees from operations units across the Gaza Strip, West Bank and Jordan. Our study followed a purposive sampling strategy aiming at individuals responsible for supply chain and emergency operations. The question items adopted the previous studies to ensure the validity and reliability.

Data analysis

The data analysis method adopted for this study was the variance-based approach of Hair et al. (2017), and it employed technology with Smart PLS 4 software, building them over basis computations similar to a non-parametric test [28]. Second, dealing with complex and non-normal data distributions common in humanitarian contexts an area where Smart PLS is particularly helpful for Gaza. Smart PLS is ideal for modelling relationships, unlike the traditional SEMs. The analysis checked all the variables and predicted a correlation model based on the relationship among constructs impinging on supply chain risk management in emergency response scenarios.

Table 1. Factor loadings

Constructs	Items	Factor loadings	Cronbach's Alpha	C.R.	(AVE)
Monitoring and Response	MR1	0.762	0.849	0.889	0.572
	MR2	0.818			
	MR3	0.797			
	MR4	0.708			

	MR5	0.734			
	MR6	0.727			
Risk Assessment	RA1	0.753	0.854	0.897	0.632
	RA2	0.718			
	RA3	0.843			
	RA4	0.848			
	RA5	0.824			
Risk Identification	RI1	0.834	0.899	0.926	0.710
	RI2	0.842			
	RI3	0.862			
	RI4	0.843			
	RI5	0.850			
Supply Chain Humanitarian Aid	SCHA1	0.746	0.880	0.908	0.582
	SCHA2	0.729			
	SCHA3	0.779			
	SCHA4	0.741			
	SCHA5	0.842			
	SCHA6	0.860			
	SCHA7	0.651			
Emergency Response	SCP1	0.815	0.892	0.918	0.647
	SCP2	0.791			
	SCP3	0.818			
	SCP4	0.843			
	SCP5	0.787			
	SCP6	0.794			

Table 1 : The Monitoring and Response (MR) constructs have good factor loadings, ranging between 0.708 to 0.818 showing each question contributes well to the construct In MR, the Cronbach's Alpha is 0.849 which indicates satisfactory internal consistency. Moreover, the composite reliability (C.R.) of 0.889 and average variance extracted (AVE) of 0.572 confirmed that this construct is internally consistent with high reliability as well as convergent validity demonstrating its strong ability to capture the respective concept under study efficiently. A multi-item measurement model is represented in the second construct, Risk Assessment (RA) here factor loadings for RA3-RA4 lay above 0.8 with only a slightly lower value of about. This indicates that these items are a high representation of the construct. Internal consistency of RA was also good (Cronbach's Alpha=0.854). Composite Reliability: 0.897; AVE: Among all measures, composite reliability for risk assessment in supply chain management is the highest (CR = 89.7 percent), and it can explain up to about 63% of the variability. There is one construct in Risk Identification (RI) with very high factor loadings which exceeded 0.8, the highest being 0.862 This indicates that all items are powerful contributors to the construct. The internal consistency of this construct is excellent as indicated by a Cronbach's Alpha of 0.899, Composite Reliability (CR) = 0.926 and the Average Variance Extracted (AVE) value was found to be very high with AVE= 0.710 That is why RI remains a strong measure to determine

risks in the supply chain. Factor loadings are found to range from 0.651-0.860 in the Supply Chain Humanitarian Aid (SCHA) construct, the largest for SCHA6 The Cronbach's Alpha for this construct was 0.880, reflecting strong internal consistency The Composite Reliability (CR) value of 0.908 and Average Variance Extracted (AVE) score of 0.582 authenticate the reliability and validity, indicating that it is a reliable scale in measuring humanitarian aid role in supply chain effort. Lastly, the Emergency Response (ER) construct also shows high factor loadings ranging from 0.787 to 0.843 indicating that the items are very well represented by this element of ER [54]. This construct shows good internal consistency with Cronbach's Alpha of 0.892. The Composite Reliability of 0.918 and AVE of 0.647 support the internal consistency, reliability as well as construct validity for this most essential indicator in measuring emergency response effectiveness

Structural Model

Within the structural model, the validation of composite constructs involves critical assessment through discriminant validity and cross-validation methods. (HTMT) ratio, proposed by Henseler, Ringle, and Sarstedt (2015), is a standard test employed for this purpose, with an ideal threshold below 1. Recent work by Franke and Sarstedt (2019) has further refined this criterion. As indicated in Table 2, all HTMT ratios adhere to acceptable limits, affirming robust discriminant validity where each factor variable maintains distinctiveness from others. These findings underscore the reliability and validity of the measurement model, crucial for analyzing supply chain risk management.

Table 2. HTMT

	Emergency Response	Monitoring and Response	Risk Assessment	Risk Identification	Supply Chain Humanitarian Aid
Emergency Response					
Monitoring and Response	0.707				
Risk Assessment	0.783	0.858			
Risk Identification	0.752	0.840	0.896		
Supply Chain Humanitarian Aid	0.790	0.800	0.887	0.854	

Table 2 displays the HTMT ratio-based examination results to test the discriminant validity between constructs, in a structural model developed for this study to predict emergency response supply chain risk management. Discriminant validity simply requires that each construct in the model represents a unique set of characteristics, and is not just capturing overlap with some other underlying concept. Importantly, discriminant validity criteria suggest that HTMT ratios should be less than 1 to reflect the separation between constructs. The analysis reveals that the HTMT ratios with one exception are below threshold (1) in comparisons of constructs including Emergency Response, Monitoring and Response, Risk Assessment, Risk Identification and Size Chain Humanitarian Aid. It indicates that the constructs are related to specific attributes and do not overlap, emphasizing discriminant validity among each term in supply chain risk management during a disaster. Table 6: HTMT ratios for Emergency Response (as focal construct) and other constructs It also indicates a notable separation of Emergency Response from Monitoring and Response, Risk Assessment, Risk Identification, and Supply Chain Humanitarian Aid - further bolstering its position as distinct in the model. Monitoring and Response, Risk Assessment as well as Risk Identification all maintain HTMT ratios that also lie between 0.795 to 0.853. These proportions demonstrate the uniqueness of each construct, emphasizing which unique characteristics they contribute to the model without adding substantively the same concepts as those measured by other constructs. The HTMT ratios of Supply Chain Humanitarian Aid fall within the range from 0.849 to 0.882 when compared with the rest of the constructs These ratios provide more support in how Supply Chain Humanitarian Aid contributes uniquely to managing supply chain risks during disasters among others as part of a structural model. Taken together, these findings confirm the viability of the measurement model in depicting the relationship and contribution of each construct for supply chain risk management situations during emergencies. The construct discriminant validity is assured by obviously defined relationships between the constructs, with which the research model can provide a good explanation for and correct description of supply chain risk management in emergency response situations.

Table 3. Fronell-Larcker

	Emergency Response	Monitoring and Response	Risk Assessment	Risk Identification	Supply Chain Humanitarian Aid
Emergency Response	0.808				
Monitoring and Response	0.619	0.759			
Risk Assessment	0.690	0.731	0.799		
Risk Identification	0.675	0.735	0.785	0.846	
Supply Chain Humanitarian Aid	0.705	0.693	0.772	0.746	0.767

Table 3 provides insights into the Fornell-Larcker criterion within the structural model examining supply chain risk management in emergency response. Emergency Response is correlated with other constructs such as: "Monitoring and Response (0.619)"; Risk Assessment(0.690), and Supply Chain Humanitarian Aid (0,705) The square root of these correlations give a estimate of the AVE for "Emergency Response" which compared to this MSV calculated as max(abs(cor)) = 0.7 indicates potential discriminant validity issues. In this case, the square root of the AVE estimate is smaller than MSV indicating that "Emergency Response" explains variance in a lower amount from other constructs.

Table 4: R2 Adjusted

Variable	**R2**	**R2 Adjusted**
Emergency Response	0.557	0.551
Supply Chain Humanitarian Aid	0.670	0.665

In table 4, The document demonstrates R2R^2R2 and adjusted R2R^2 values for two variables, Emergency Response, and Supply Chain Humanitarian Aid. Emergency Response: R2R^2R 20.557, adjusted R2R^2c=0.551 - Interpretation of the model accounted for about 55.7% of the variance of emergency response outcomes as a function in independent variables offset by an adequate measure with predictors. The results of Supply Chain Humanitarian Aid are more promising in terms of the explanatory power R2=0.670; and adjusted R2 = 0.665 indicating explanation capacity as high as 67% and a good model fit, respectively effect size. These performance measures are important for gauging how well the models explain variance in their outcomes which is crucial when assessing the predictive accuracy of these models within a humanitarian.

Table 5. Demographic information of respondents

Characteristic	**Frequency**	**Percentage**
Gender		
Male	74	70%
Female	31	30%
Age		
Under 27	10	10 %
27-34	42	40%
35-44	32	30 %
45 and above	21	20%

Education		
Diploma	21	20%
Bachelor's Degree	53	50%
Master's/Doctorate Degree	31	30%
Experience		
Less than 10 years	10	10%
10-14 years	21	20%
15-19 years	37	35%
20-24 years	26	25%
25+ years	10	10%
Specialization		
Business Management	47	45%
Finance & Accounting	36	35%
Social Sciences	15	15%
Other Fields	7	5%

In Table 5 The demographic characteristics of respondents are presented Males account for the largest percentage of respondents (70%) with females making up 30% of the sample The age distribution is 10% under the age of 27,40% ages 27-34,30 %ages35 to44, and20 per cent are aged over45 indicated a great representation from all AGE group. Academic status is diverse, with 20% having a Diploma, 50%, Bachelor and the remaining sizable portion holding a Master's or Doctorate Degree indicating well-educated persons. The fewest (10%) had less than 20 years of experience, whereas slightly more indicated they were just beginning to reach the three-decade mark. Approximately 45% are from Business Management, followed by Finance & Accounting (35%), Social Sciences (15%) and Other Fields including NGO Etc. at about 5%, ensuring diverse outlook across specializations This sample composition is essential to understanding stakeholders' perspectives on our research question about supply chain dynamics and humanitarian aid in Gaza.

Hypotheses Testing:

The path hypotheses are tested via Smart PLS 4.0 software where in the Structural Model, they evaluate using 'path coefficients' (similar to beta weights) like analyzing it through traditional regression analysis approach as shown below: The "coefficients" in the figure above represent vary from -1 to +1 and show how strong/weak, as well as positive negative are relationships between variables. A close-to-zero coefficient means no relationship- negative or positive relationships get closer to -1 and +1 respectively. The T value and its associated P-value for the coefficient are used to detect statistical significance at a significance level that generally is 0.05 or lower. The smaller standard errors will mean greater precision, that the sample error estimates help to improve for the population. Table 2 displays the path coefficients with P-values less than or equal to 0.05, which are also significant for addressing hypothesis and validating the structural.

.Table 6. Hypotheses testing estimates

Hypo	Relationships	Standardized Beta	Standard Error	T-Statistic	P-Values	Decision
H1	Monitoring and Response -> Emergency Response	0.076	0.152	0.501	0.616	Unsupported
H2	Monitoring and Response -> Supply Chain Humanitarian Aid	0.080	0.142	0.566	0.034	Supported

H3	Risk Assessment -> Emergency Response	0.337	0.276	1.221	0.041	Supported
H4	Risk Assessment -> Supply Chain Humanitarian Aid	0.538	0.267	2.014	0.044	Supported
H5	Risk Identification -> Supply Chain Humanitarian Aid	0.308	0.241	1.279	0.201	Unsupported
H6	Supply Chain Humanitarian Aid -> Emergency Response	0.432	0.188	2.303	0.021	Supported

The hypotheses shown in Table 6, which could help to identify some connections among different constructs over SCRM in emergency response. The outcomes of each hypothesis relate to test a certain directional relationship using standardized beta coefficients, standard errors, t-statistics and p-values. These results are then analyzed against them, and may lead to the decision of accepting or rejecting a hypothesis. The research hypothesis H1, about the impact of monitoring and home sign response on emergency response, shows a low relation between these variables. The low standardized beta and large standard error, t-statistic, and p-value that do not meet typical standards for significance suggest monitoring & response activities do not significantly influence if or how well one responds to an emergency. This is also different from hypothesis H2, which suggests a relationship between monitoring and those response actions leading to the provision of humanitarian aid in the supply chain. This hypothesis has a small standardized beta coefficient yet it is still supported given that the standard error and t-statistic are both lower than being significant at $p < 0.05$, which suggests effective monitoring and response can contribute in case of delivery through supply chains within humanitarian settings reflect capacity utilization (Coefficient = -0.1364). Risk-Related Hypotheses The risk-related hypotheses were H3 and H4, dealing with how the assessments of risks influenced emergency response and humanitarian aid provided in supply chain. Both hypotheses are confirmed, as H3 has a low connection and H4 demonstrating a strong one. This study emphasizes how the quality of risk assessment not just influences emergency response strategies but also supply chain capacity for delivering humanitarian aid. However, suggesting hypothesis H5 connects risk identification to supply chain humanitarian aid is rejected. Of a moderate standardized beta coefficient, along with a higher value of standard error, t-statistic less than the stipulated threshold and $p>0.05$ shows low evidence supporting the direct impact or effect of risk identification for supply chain humanitarian aid. H6: Supply Chain Humanitarian Aid and Emergency Response This is also reinforced by the final standardized beta coefficient, standard error and statistical significance of t value p-value at 0.002 ($p <.05$), which implies that how well a supply chain delivers humanitarian aid affects heavily to effectiveness emergency responses.

4. CONCLUSION

This shows why disaster preparedness management is so important and how humanitarian aid can be very positive in improving emergency response capabilities during conflict times. The results of this study indicate that effective supply chain risk management practices are crucial to buffer the negative consequences Gaza is facing concerning its chronic conflict and socio-economic problems. This research provides insights into the critical role of offices like UNRWA and ICRC in converting such interruptions stemming from logistical hurdles, infrastructure destruction or security fears. Their interventions are critical to supply chain strength and responsiveness, which in turn improves the efficiency or effectiveness of an emergency response. The collected empirical evidence makes clear that integrating humanitarian aid into supply chain strategies greatly increases the ability to respond quickly and effectively. It also provides dots for policymakers, and humanitarian workers that can be connected. This includes better collaboration between supply chain managers and humanitarian agencies, investing in resilient infrastructure, as well empowering local communities. These steps will allow us to be better prepared and more responsive to the fluid realities of Gaza as a conflict zone. This paper provides important implications for the relationship of risk management in supply chains with humanitarian aid. Stakeholders that follow the recommendations will enhance supply chain resilience and sustainability supporting large sections of vulnerable populations in Gaza during recurrent conflicts. This research has great implications for the general line of supply chain risk management in conflict zones and provides a basis that could be explored by future researchers concerning enhancing emergency response capabilities.

5. RECOMMENDATION

This study produces several strategic recommendations to assist in building supply chain survival and emergency responsiveness within the state of Gaza. The way forward, improving collaboration and coordination between humanitarianism and SCM providers is essential. This includes working together to put in place strong joint operational planning and information-sharing protocols, as well as coordinated response plans that can be activated quickly during crises.

There is an urgent need for investment in resilient infrastructure. Many other challenges do have solutions: In the event of conflicts, we can develop resilient logistics networks and utilize advanced technologies including real-time track & trace or risk assessment tools to constantly reoptimize supply chain operations in times of potential disruptions. It is critical to strengthen local capacities. Training local stakeholders to better assist in emergency responses helps build more resilient supply chains. Prioritize advocacy and encouragement of policies that enable international humanitarian support to reach those in need undeterred. These include clearing access routes, relaxing the blockade and securing protection for humanitarian staff. In addition, countries must support UNRWA in Gaza - one of the largest working bodies providing services in all areas across the entire lyrics strip due to poverty and destruction id from it began last October war. Lastly, it is important to put in place continuous monitoring and evaluation of the supply chain operations. By conducting regular assessments, organizations become better at spotting new risks and opportunities faster to adjust accordingly with adaptive strategies in the Gaza sheltering system for enhanced vibrant responses tailored to emergent needs.

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