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COLLEGE OF BUSINESS AND ECONOMICS

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Effect of Humanitarian Supply Chain Management Practices on The Performance of Humanitarian Organizations: The Case of Selected International Humanitarian Organizations in Ethiopia

BY ELIAS ALEMU SEYOUM

A THESIS SUBMITTED TO THE SCHOOL OF COMMERCE IN PARTIAL FULFILLEMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

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THE SCHOOL OF GRADUATE STUDIES OF THE ADDIS ABABA UNIVERSITY
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Declaration

I, the undersigned declare that this thesis (Effect of Humanitarian Supply Chain Management Practices on The Performance of Humanitarian Organizations: The Case of Selected International Humanitarian Organizations in Ethiopia) is my original work. It has not been submitted for a degree in any other universities and all the materials used in this study have been duly acknowledged.

Signature: _____ Date: _____
Elias Alemu Seyoum

CERTIFICATION

This is to certify that the thesis entitled "*Effect of Humanitarian Supply Chain Management Practices on The Performance of Humanitarian Organizations: The Case of Selected International Humanitarian Organizations in Ethiopia*" submitted to Addis Ababa University School of Commerce for the award of the Degree of Master of Arts in Logistics and Supply Chain Management has been carried out by Elias Alemu under my guidance and supervision.

Advisor: Dr. Busha Temesgen

Signature: _____

Date: _____

Acknowledgment

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I appreciate their unwavering encouragement, faith, and dedication to my goals. Their support has inspired me to keep going, reminding me of the importance of perseverance, determination, and appreciation as I worked on this thesis.

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Lists of Acronyms

AAH - Action Against Hunger

ESNFI- Emergency Shelter and Non Food Items

COOPI- Cooperazione Internazionale

HRP- Humanitarian Response Plan

HSCM- Humanitarian Supply Chain management

I1D- Imagine one day

IDP- Internal Displaced Population

NGO- Non Governmental Organization

OCHA- Office for coordination of Humanitarian Affairs

Abstract

The effectiveness of humanitarian supply chain management practices is crucial for enabling timely responses to crises and providing assistance to affected populations. This Study aims to investigate the effect of humanitarian supply chain practices on the performance of the selected international humanitarian organizations operating in Ethiopia. Using a quantitative approach and explanatory design, the research investigates the causal relationships between various supply chain practices (procurement, distribution, warehouse, transport, and information sharing) and performance metrics such as responsiveness, agility, cost, and reliability. Data was collected from respondents through a structured questionnaire. These respondents were employees of three international humanitarian organizations: AAH, COOPI, and Imagine 1 Day. The study employed inferential statistics, including correlation and regression analyses, to interpret the data. Findings reveal a positive relationship between all independent variables and performance, with warehouse management emerging as the most influential practice, despite being the second least adopted. Transportation practices were identified as the least implemented, indicating a need for significant improvement. Future research could explore beneficiary responses and involve a larger number of organizations to gain broader insights. This study contributes to understanding HSCM dynamics and offers practical implications for practitioners and researchers.

Keywords:- Humanitarian Supply chain, Performance Metrics,Humanitarian Organization, Aid delivery

Chapter One

1. Introduction

This chapter presents the back ground of the study, statement of the problem,objectives of the study, Research Hypothesis,significance of the study, and scope of the study, definition of key terms and organization of the study.

1.1 Background of the study

Humanitarian needs have been accelerating over the past two decades. In an increasingly globalized world, the frequency and magnitude of disasters, both natural and man-made, have placed a growing burden on the international humanitarian community(Pusterla, Pusterla, 2021).

After a disaster occurs, timely and suitable provision of necessary assistance (e.g. shelter, food and non-food items, medicine and water) is crucial (Thomas and Kopczak, 2005).

Humanitarian supply chain is the process used by not-for-profit or donor funded organizations to plan, implement, control the efficiency, cost effective flow and storage of goods and materials as well as related material, from the point of origin to the point of consumption for the purpose of alleviating the suffering of the most vulnerable and most at-risk people (Anjomshoae, 2022).The field of humanitarian supply chain management plays a pivotal role in addressing the critical needs of disaster-affected populations, particularly in the context of international humanitarian organizations..

According to Mohamed (2012) the effectiveness of humanitarian supply chains in delivering timely aid, relief, and assistance can be a matter of life and death for those affected by disasters. Ethiopia, a nation with its own history of natural and man-made disasters, has been a focal point for humanitarian operations, with various international organizations striving to provide essential support to affected communities.

Relating to HSCM in Ethiopian, the emergence & development programs are implemented in the occurrence of the major food crises happened in 1950's which claims the life of many Ethiopians affected due to drought. Since, Ethiopia has been facing recurring drought and famine due to environmental, social and political factors which subject the large amount of the rural population to vulnerability and food insecurity to the country (Legese bale & Shahsi kant,2023) In this regard, the performance and success of humanitarian supply chains in Ethiopia are of paramount importance. However, the achievement of effective supply chain practices and their alignment with the unique challenges of the humanitarian context is a multifaceted endeavor.

According to Abdifatah Mohamed (2012) Humanitarian supply chain practices are specialized processes designed to facilitate the efficient and effective delivery of aid and assistance to disaster-affected populations. Unlike traditional supply chains, humanitarian supply chains operate in dynamic and often challenging environments characterized by uncertainty, resource constraints, and urgency.

The performance of a humanitarian organization is defined by its capacity to efficiently and effectively provide aid and assistance to vulnerable populations during crises or emergencies, while also achieving desired outcomes in terms of reducing suffering and fostering recovery and resilience within affected communities (Atinkson,2012).

1.2 Background of the organisations

The research selected three international organizations as the study area, namely Action Against Hunger (AAH), Cooperazione Internazionale (COOPI), and imagine1day.

Action Against Hunger is an international humanitarian organization dedicated to combating the causes and consequences of malnutrition in over 40 countries, striving towards a world without hunger.

With more than 5,000 humanitarian professionals, AAH saves the lives of malnourished children and supports communities in achieving freedom from hunger. Operating in Ethiopia since 1985, Action Against Hunger serves vulnerable populations, including refugees and internally displaced people, across various regions such as Amhara, Benshangul Gumuz, Gambella, Oromia, Somali, Tigray, and Addis Ababa (AAH, 2023).

Cooperazione Internazionale (COOPI), founded in 1965, is an international Italian NGO committed to assisting and empowering impoverished communities worldwide. COOPI Ethiopia initiated its operations in 1994, focusing on water resources development, food security, human and veterinary health, education, awareness, and capacity building.(COOPI,2023)

Imagine1 Day is an international development organization with a specific focus on enabling primary education in Ethiopia. Their approach emphasizes leadership development as a fundamental aspect of program implementation. Their activities include school construction, comprehensive teacher training, and capacity building within rural Ethiopian communities, with a commitment to fostering self-sustainability at every stage of intervention.(Imagine1 Day 2023).

1.3 Problem Statement

In 2023 Ethiopia has faced multiple overlapping humanitarian crises, putting at risk the lives and livelihoods of millions of people and driving continued high and urgent needs for humanitarian support.

Accordingly, The 2024 EthiopiaHumanitarian Response Plan (HRP) requires more than US$3.00 billion to target more than 21 million people across the country. This includes an estimated 4.4 million IDP's (UNOCHA,2023).

According to Amsalu Sisaya and Mezgebu Liku(2022) Ethiopia has the highest number of conflict-related internally displaced persons worldwide .

This indicates that Ethiopia, has recurring humanitarian challenges and remains a vital arena for international humanitarian organizations to deliver assistance. However, the effective functioning of humanitarian supply chains, which is essential for the timely and efficient delivery of aid, is contingent upon a complex interrelated factors, many of which have yet to be comprehensively studied and understood.

Scholars have conducted thematic reviews in HSC management; nevertheless, there are a lot of themes which remain unexplored and untapped. Unlike commercial supply chain, humanitarian supply chain has a higher degree of uncertainty and involves multiple stakeholders, most of whom cannot be replaced by technology. Thus, achieving operational efficiency in a humanitarian setting is difficult and complicated.(Abhishek Behl,Pankaj Dutta and Shivam Gupta2019)

According to kalkidan (2020) studies in humanitarian supply chain for nonprofit organizations operating in Ethiopia are limited and have not been widely developed.

While previous research conducted in Ethiopia, such as Zewdi Yohannes (2021) study on the impact of humanitarian supply chain management practices on the performance of selected UN organizations in Ethiopia, Selamawit Gebreyesus (2020) assessment of humanitarian logistics performance in ERCS, and Wolde Wodaje's (2019) exploration of humanitarian logistics management challenges in Plan International Ethiopia, has contributed valuable insights, it is evident that existing studies alone are insufficient against the complexity of the subject area and outdated compared to the constantly evolving nature of crisis , humanitarian challenges and organizational practices.

The absence of a current and updated study affects the formulation of best strategies for optimizing supply chain practices.

By addressing this gap, this study aims to provide critical insights that can guide the strategies, decision-making, and practices of these organizations, ultimately upgrading their ability to respond to disasters and provide vital support to those in need.

1.4 Research Objective

1.4.1 General Objective

To empirically investigate the effect of the identified humanitarian supply chain practices on the humanitarian performance of selected humanitarian organizations operating in Ethiopia

1.4.2 Specific objectives

1.1 To empirically investigate the effect of Procurement practices on the performance of selected organizations in Ethiopia

1.2 To empirically investigate the effect of Distribution practices on the performance of selected organizations in Ethiopia.

1.3 To empirically investigate the effect of Warehouse Management practices on the performance of selected organizations in Ethiopia.

1.4. To empirically investigate the effect of Transportation practices on the performance of selected organizations in Ethiopia.

1.5 To empirically investigate the effect of Coordination and Information sharing practices on the performance of selected organizations in Ethiopia

1.5 Research Question

Q1: What is the effect of Procurement practices on the performance of selected organizations in Ethiopia?

Q2: What is the effect of Distribution practices on the performance of selected organizations in Ethiopia?

Q3: What is the effect of Warehouse Management practices on the performance of selected organizations in Ethiopia?

Q4: What is the effect of Transportation practices on the performance of selected organizations in Ethiopia?

Q5: What is the effect of Coordination and Information Sharing practices on the performance of selected organizations in Ethiopia?

1.6 Research Hypotheses

H1: Distribution practices have a positive effect on the performance of the selected organizations in Ethiopia.

H2: Transportation practices have a positive effect on the performance of the selected organizations in Ethiopia.

H3: Warehouse management practices have a positive effect on the performance of the selected organizations in Ethiopia.

H4: Procurement practices have a positive effect on the performance of the selected organizations in Ethiopia

H5: Coordination and Information sharing have a positive effect on the performance of the selected organizations in Ethiopia.

1.7 Significance of the Study

The significance of this study lies in its potential to impact the humanitarian sector significantly. With the increasing frequency and scale of humanitarian crises worldwide, it is crucial to understand and improve the factors affecting the effectiveness of humanitarian aid performance. This research, focusing on Ethiopia, a region frequently challenged by a diverse crisis, offers a unique opportunity to improve our understanding of how supply chain practices work within international humanitarian organizations operating in Ethiopia.

By testing the effect of specific practices on humanitarian supply chain performance, this research offers practical insights for making operations more efficient and effective, thus helping these organizations better respond to disasters.

The study's findings can also guide international humanitarian organizations in optimizing their supply chain strategies, thus enhancing their ability to respond promptly and efficiently to disasters. Additionally, the research can lead to the development of best practices and solutions, enabling organizations to better serve disaster-affected populations in Ethiopia and similar contexts. Ultimately, by bridging the existing knowledge gap and providing up to date practical insights, this study contributes to the broader humanitarian effort to alleviate suffering and improve the lives of those affected by crises.

1.8 Scope of the Study

The scope of this study encompasses the examination of humanitarian supply chain practices within the context of international humanitarian organizations , Specifically Action Against Hunger, Imagine 1 Day and Cooperiazionale Internationale, specifically at their headquarters located in Addis Ababa.

It focuses on five key supply chain practices: Distribution, Transportation, Warehouse, Coordination and Information Sharing and Procurement Practice. The inclusion of this practices in the scope of this study is strategically grounded by considering the balance of time constraints, literature support, and pragmatic considerations. The study the effect of these practices on the performance of the selected organizations.

Performance metrics such as Reliability, Responsiveness, Agility, and Cost are used for this research. The research's geographic scope is limited to Addis Ababa, and the study is designed to provide insights relevant to this specific headquarters context. It primarily addresses the practices that influence humanitarian supply chains and their performance impact within the headquarters setting.

1.9 Limitation of the Study

Considering that the research population is located at the headquarters in Addis Ababa, language barriers were not a significant concern. However, several other factors may affect this study and its findings. The research is confined to the context of Addis Ababa and selected international humanitarian organizations, limiting the generalizability of findings to broader global context. Moreover, the study relies on data collected during a specific time frame, potentially missing long-term changes or evolving practices within the field.

Furthermore, the study does not include beneficiaries' responses, which could provide valuable insights into the effectiveness of humanitarian supply chain practices from their perspective.

To mitigate these limitations, the researcher has employed adequate data collection methods and acknowledged the contextual constraints in the interpretation of findings.

1.10 Definition of Terms

Internal Displaced People (IDP): An IDP is someone who is forced to flee their home but remains within the borders of their own country(UNHCR 2024),

Disaster: the term disaster refers to a disruption that physically affects a System as a whole and threatens its priorities and goals (Van Wassenhove, 2006).

SCOR Model: The Supply Chain Operations Reference (SCOR) model is a comprehensive framework used to evaluate and improve supply chain performance. Developed by the Supply Chain Council, the SCOR model integrates business processes, performance metrics, best practices, and technology into a unified structure.

ESNFI: refers to the provision of emergency shelter and essential non-food items, including blankets, clothing, and hygiene kits, to assist individuals affected by disasters or crises in meeting their basic needs. (Shelter Cluster,2024)

1.11 Organization of the Study

The study proposal is structured into five main chapters. The first chapter serves as the introduction, encompassing the background of the study and that of the organization, the statement of the problem, research objectives, research hypothesis, significance of the study, scope, limitations, and definition of terms.

The second chapter focuses on the review of related current and prior literature, emphasizing both theoretical and empirical works to establish conceptual frameworks. These frameworks support the fundamental questions analyzed in the study.

The third chapter outlines the study design and methodology. This section elaborates on the chosen study design, sources of data, data collection techniques, sampling method, target population, and the approach to data analysis and presentation.

The fourth chapter focuses on interpreting the collected data through descriptive statistics, correlation analysis, and regression analysis to reveal the relationships between supply chain management practices and organizational performance.

The fifth chapter summarizes the key findings, concludes with insights on the most impactful practices, and offers practical recommendations for further area of research in the field of supply chain practices in humanitarian organizations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter outlines the literature review part of Supply chain managment, Humanitarian Organisations,Disasters,Humanitarian Supply Chain Management Practices, Performance Measurement of Humanitarian Organization, Literature Gap,Empirical Literature and Conceptual Framework.

2.1 Theoretical Literature

2.1.1 Supply Chain Management

Supply chain management (SCM) is the management of the entire process that transforms raw materials into finished products and delivers them to the end customer. It involves the coordination and integration of various activities such as procurement, Storage, transportation, distribution, and customer service to optimize the overall performance of the supply chain.

According to Xiaoyuan and Swaminathan (2015) A supply chain is the set of entities that are involved in the design of new products and services, procuring raw materials, transforming them into semi finished and finished products and delivering them to the end customers. Supply chain management is efficient management of the end-to-end process starting from the design of the product or service to the time when it has been sold, consumed, and finally disposed of by the consumer. This complete process includes product design, procurement, planning and forecasting, production, distribution, fulfillment, and after-sales support.

The supply chain can have different degrees of complexity related to the numbers of members and the variety of business process, but always there is a central organization. This organization can manage the entire supply chain or not and even the supply chain is not managed, the supply chain - as a phenomenon of business -still exists (Mentzer, 2001).

According to Chopra and Meindl (2007), "a supply chain comprises all entities directly or indirectly engaged in meeting a customer's needs. Within individual organizations, like manufacturers, the supply chain encompasses all departments involved in processing a customer order. These departments encompass, among others, new product development, marketing, operations, distribution, finance, and customer service."

Quinn (1997) defines the supply chain as encompassing "all activities related to the movement of goods, starting from the raw materials phase to reaching the end user. This includes tasks such as sourcing and procurement, production scheduling, order processing, inventory management, transportation, warehousing, and customer service."

2.1.2 Disaster

Disasters are serious disruptions to the functioning of a community that exceed its capacity to cope using its own resources. Disasters can be caused by natural, man-made and technological hazards, as well as various factors that influence the exposure and vulnerability of a community(IFRC,2023).

According to Mcfarlane and Norris (2006). The original derivation of the word came from the Latin dis astro or “bad star” and implied a calamity.

Events are classified as disasters if they meet one or more of the following criteria: (1) resulting in the reported deaths of 10 or more individuals, (2) affecting 100 or more individuals, (3) prompting an appeal for international assistance, and/or (4) leading to the declaration of a state of emergency (International Federation of Red Cross and Red Crescent Societies, 2000).

According to the World Health Organization (WHO), a 'disaster' is defined as any incident causing damage, destruction, disruption of ecosystems, loss of life, human suffering, deterioration of health, and disruption of health services to a degree that necessitates an extraordinary response from sources outside the affected community or region. Earthquakes, hurricanes, tornadoes, volcanic eruptions, fires, floods, blizzards, droughts, acts of terrorism, chemical spills, and

nuclear accidents are all categorized as disasters, each capable of inflicting significant harm in terms of human injuries and property damage.

“More than 820 million people in the world are still hungry today, underscoring the immense challenge of achieving the Zero Hunger target by 2030. Hunger is rising in almost all sub regions of Africa” (Food and Agriculture Organization, 2019)

2.1.3Humanatarian Organizations

According to Carolyne (2013) Humanitarian organizations also referred as Non Governmental Organizations (NGOs) or relief organizations are entities dedicated to promoting and protecting the well-being of people and communities affected by crises, disasters, conflicts, and other emergencies. These organizations operate on principles of humanity, impartiality, neutrality, and independence, with the primary goal of alleviating suffering and ensuring the survival and dignity of individuals in need.

Humanitarian organizations can take various forms, including international non-governmental organizations (NGOs), government agencies, and United Nations (UN) agencies. They may engage in activities such as providing emergency food and shelter, healthcare, water and sanitation, education, and protection for vulnerable populations. Additionally, they often work to address the root causes of crises and advocate for policies that promote peace, stability, and the protection of human rights.

Humanitarian organizations (HOs) are responsible for the distribution of donated humanitarian aid, which can include both gifts-in-kind provided by third parties and cash donations from donors. Gifts-in-kind donations present challenges due to potential mismatches between the needs of beneficiaries and the items donated. On the other hand, cash donations enable HOs to procure commodities from either local or global suppliers (Lamenza et al, 2019). Local procurement offers advantages such as stimulating the local economy and reducing transportation costs and cycle times. However, it may also be associated with drawbacks such as lower quality, reduced availability, and higher prices (Duran et al., 2013).

2.1.4 Humanitarian supply chain management Practices

The humanitarian supply chain (HSC) is an emerging field that has gained importance in the recent past. According to Mostafizur and Tasnim (2022) It is crucial to deliver sufficient humanitarian aid to communities impacted by natural disasters. In a humanitarian supply chain system, the core value and primary objective are to assist and support the community in need with goods and services. Supply Chain Management Practices covers a set of activities and processes from upstream and downstream and firm's internal operations.(Abdifatah Hassan Mohamed,2012)

The money spent on humanitarian operations mostly goes to supply chain management related activities. According to Lu, Goh, and De Souza (2016) , Between 60% and 80% of expenditures on humanitarian operations are due to supply chain activities . This shows how important supply chain management is in making sure humanitarian efforts work well. These expenditures encompass various elements, including transportation, warehousing, procurement, and distribution management . Since most of the money goes into supply chain management, it's crucial to spend it wisely. Making supply chain management better is key to delivering aid on time and without wasting money. So, it's really important to pay attention to and improve the supply chain management side of humanitarian work to make sure help reaches the people who need it quickly and efficiently.

Blacik and Beaamon (2008) states that the core components of the humanitarian relief supply chain are: (i). Procurement, (ii). Transport, (iii). Warehousing management and (iv). Distribution

Legesse Bale and Shashi Kant (2023) underscore the critical aspects of humanitarian supply chain management, highlighting information sharing, transportation, warehouse management, and coordination as key practices essential for effective and efficient operations in delivering aid during crises and emergencies.

Hence, This literature adopted the following humanitarian supply chain practice as and independent variable.

2.1.4.1 Procurement Practice

Procurement practices in the context of humanitarian supply chain management refer to the systematic processes and strategies employed by organizations to acquire goods, services, and resources necessary for responding to humanitarian crises and alleviate sufferings.

Van Weele (2018) describes procurement as a series of activities encompassing communication and cooperation with internal buyers (such as other departments), specification determination for needed products or services, sourcing (including strategy formulation, supplier search, selection, and contract negotiation), acquisition of materials or services (comprising ordering and procurement from suppliers, expediting and monitoring, product evaluation, and supplier performance assessment), and supplier relationship management.

According to Rono Thomas (2017) Procurement practices aim at ensuring that organizations get value for money when committing their expenditure. This entails the organization achieving its strategic goals by efficiently sourcing the necessary goods and services from appropriate suppliers. Humanitarian organizations procurement activities involve pre-positioning supplies acquired before a disaster and obtaining additional supplies right after the event. Disasters cause a sudden, significant surge in demand for certain goods. If humanitarian organizations do not procure these supplies efficiently and effectively, they may not meet the needs of the affected populations.(Mohammad Moshtari, Nezih Altay ,Jussi Heikki,Paulo Gonçalves,2021)

According to Duran (2013) The advance purchase and pre-positioning of relief supplies speed up the initial humanitarian response after the strike of a disaster. It is a strategic decision that requires significant amount of investment both in infrastructure and inventory. It eliminates the difficulties and disadvantages of procuring after disaster with faster response time.

One of the most crucial procurement process is supplier selection, HOs investigate potential suppliers to determine whether they are qualified to receive a request for information (RFI), for proposals (RFP), or for quotes (RFQ). Price, quality, and leadtime are among common supplier selection criteria shared with the commercial sector (Logistics Cluster, 2019)

According to Duran (2013) Supplier selection is a critical component of procurement practices in the humanitarian supply chain, involving the careful assessment of suppliers based on factors like reliability and capacity. The process directly influences the quality, cost, and timely availability of essential supplies, crucial for effective crisis response. Choosing reliable and ethical suppliers enhances an organization's ability to navigate disruptions and contributes to overall procurement efficiency. In humanitarian aid, rapid response is essential, making thoughtful supplier selection pivotal for delivering timely and impactful assistance.

Utilizing information technology in procurement processes can reduce the time required for sharing and processing information. The use of information technology in procurement enables the coordination of business processes both within and outside the organization (Rono Thomas Kipkemol,2017)

Organizational performance is enhanced by improved productivity and faster response times. Real time communications also enable faster transactions and saves on time. Electronic procurement allows ordering and approval of all transactions in a shorter time span compared to manual requisitions (Lewis and Roehrich, 2009).

The study of ethical behavior in buyer-supplier relationship chain is emergent and contemporary. Unethical procurement behaviour is common in the areas like; competitive bidding, negotiation, giving preference to a supplier , conflict of interest and confidentiality. Ethics is not only included in the humanitarian organizations' values and strategies, but also in relationships and collaboration with suppliers (Svensson, G. 2009)

Ethics holds paramount significance within the realm of procurement in the public sector. Recognizing the imperative to balance efficiency and cost-effectiveness, public organizations acknowledge the necessity to combat corruption and prevent the squandering of public resources (Christopher & Atkinson, 2020)

2.1.4.2 Distribution Practice

A distribution is the hand-over of commodities to intended beneficiaries, fairly and according to specified rations, selection criteria and priorities(Duran et. al, 2013).

A distribution is the process during which control over the commodity passes from the organization holding the stock to the intended beneficiaries(Guidelines for the distribution of shelter/nfi kits ,2017)

According to Duran (2013) Last-mile distribution is a critical component in the SCM process, specifically focusing on the final leg of the journey where goods and assistance reach their ultimate destinations. Successful last-mile distribution practices play a crucial role in addressing the immediate needs of affected populations, enhancing the responsiveness of humanitarian aid efforts, and optimizing the utilization of available resources.

The last mile process is critical to ensure that the reliefs item are received by the people who really need them. This phase is often challenging, due to damaged infrastructure and road limitations within the affected area (Duran et. al, 2013)

According to Sara Germew(2020) The number of distribution points should be minimized to reduce the distance to beneficiaries, ensuring a more efficient and timely delivery of humanitarian aid. However, it is equally crucial that these distribution points are strategically located in already established community centers and meeting places. This practice is essential to capitalize on existing community infrastructure, fostering a sense of familiarity and accessibility for the beneficiaries. Placing distribution points in community hubs enhances the acceptance and uptake of aid, as beneficiaries are more likely to frequent familiar locations.

2.1.4.3 Transportation Practice

Transportation plays a crucial role in the logistics chain, making it possible to bring assistance, whether it's goods arriving from abroad or their movement within the country, to the places where it's needed. When we talk about transportation, it's not just about figuring out the necessary ways to move supplies; it's also about finding out the actual options and different ways to deliver assistance. We should naturally think about using various means, methods, and routes. It's not about moving supplies without much thought; the real challenge is to do it safely and on time. This might mean using all the available ways of transport. (R.S. Stephenson, 1993).

When deciding how to transport things, we need to consider two main things: what's needed on the ground, like how urgent it is, what type of supplies we're dealing with, how far the destination is, and other conditions like the routes and the weather. We also need to think about the practical side of transportation, like what means are available, how much it costs, how easy it is to access, and how much it can carry (Van Wassenhove, Martinez and Stapleton, 2008).

The serious nature of the disasters made it hard for logistics networks to deliver supplies, equipment, and personnel to the right places at the right times. The most common situations after a disaster include closed roads, fixing damaged roads, and reopening them.

Collaborating with external transport service providers or outsourcing is pivotal for optimizing the performance of humanitarian supply chains. It allows organizations to increase their capacity, especially during periods of increased demand or emergencies. This collaboration enables access to a diverse fleet of vehicles that vary in size , expertise in logistics, and expanded geographical coverage, contributing to enhanced flexibility and responsiveness (Kumar and Havey ,2013).

According to Sara Geremew (2020) Transportation flexibility and resilience can be achieved through the use of multimodal transportation that goes beyond conventional modes used under non-emergency conditions, and where special modes of transportation resilient to disaster conditions, such as military resources, are critical. In addition to road, airplane, and commercial shipping, alternative transportation such as specialized aircraft, and helicopters should be available when other modes of transportation are not available.

2.1.4.4 Warehouse Practice

In a supply chain, the warehouse function is critical for managing material flows between the supplier and the customer, serving as a vital node. In today's dynamic business environment, companies are increasingly driven to enhance their warehouse operations. Many businesses have also adjusted their value propositions to improve customer service rates, resulting in advancements in warehouse positioning. (Grant, 2006).

Strategic placement of warehouses is crucial in humanitarian operations. By strategically locating warehouses, organizations can optimize accessibility to affected areas, reduce transportation time, and enhance overall supply chain efficiency. Well-placed warehouses contribute to quicker response times during emergencies and facilitate the timely delivery of critical aid to beneficiaries. (Costaa et al., 2012).

According to Richards, (2014) Climate control in warehouses of HSC is particularly important for preserving the integrity of sensitive items, such as medical supplies or perishable goods. Maintaining appropriate storage conditions ensures that humanitarian aid remains effective and safe for use. This practice directly influences performance by safeguarding the quality of supplies, preventing spoilage, and ultimately contributing to the success of relief operations.

According to Dimitrios,(2008)Implementing robust security measures is vital to protect stored goods from theft, damage, or tampering. Adequate security practices enhance the reliability of warehouses and protect valuable humanitarian resources.

This directly impacts performance by safeguarding the integrity of supplies, maintaining the trust of stakeholders, and preventing disruptions to the supply chain due to theft or damage.

2.1.4.5 Information Sharing and Coordination

Information sharing in supply chain management refers to the exchange of relevant and timely data among different entities within a supply chain network.

According to Shashi Kant (2023). Information sharing has been essential part or foundation of supply chain collaboration and supply chain partners who exchange information regularly are able to work as a single entity and can understand the needs of the other partner better and, hence, can respond to any change quicker

Given the sensitive nature of information exchanged in humanitarian supply chains, securing communication channels is paramount. Implementing secure communication channels involves using encrypted technologies for messaging, email, and data transfer. Encryption ensures that only authorized individuals can access and interpret the information, safeguarding against unauthorized access and data breaches. By prioritizing information security, humanitarian organizations can build trust among stakeholders and protect critical data from potential threats, thereby maintaining the integrity of the coordination process.(Wisner et al. 2007).

According to Maspero & Ittmann,(2008). Information Technology emerges as a powerful tool to alleviate complexity and enhance the resilience of supply chain operations. Through the integration of advanced technologies, IT offers dynamic solutions for real-time data management, communication, and decision-making. Whether grappling with unpredictable logistics, environmental contingencies, or geopolitical shifts, the adaptability and efficiency afforded by IT enable stakeholders to navigate uncertainties more effectively.

Automated reporting systems, geospatial tools, and mobile applications empower organizations to respond promptly to changing circumstances, fostering a more agile and responsive supply chain. .

Humanitarian supply chain information systems should be crafted to gather accurate, timely, and pertinent data regarding various aspects of a disaster. This encompasses information on disaster-related needs, gaps, and humanitarian priorities, as well as details about available resources, funding, infrastructure conditions, and access status. these systems should track capacities, goods, and delivery statuses, while also identifying key actors throughout the supply chain, including suppliers, transport and infrastructure providers, and end users (Comes & Walle, 2016).

In the context of humanitarian practices, coordination refers to the systematic and collaborative effort among various actors, organizations, and stakeholders involved in responding to crises or disasters

Effective coordination practices are pivotal in humanitarian supply chains, particularly in collaboration with non-governmental organizations (NGOs), stakeholders, and beneficiaries. Coordinating with NGOs involves establishing clear lines of communication, sharing resources, and aligning strategies to ensure a unified response. Collaborating with stakeholders, including government agencies and international bodies, requires the establishment of partnerships, the exchange of critical information, and the creation of joint action plans to address diverse challenges. Equally important is the coordination with beneficiaries, involving community engagement, understanding their unique needs, and incorporating their insights into decision-making processes. Successful coordination across these entities not only optimizes resource utilization but also ensures a more comprehensive and empathetic approach to humanitarian efforts, ultimately enhancing the overall impact and sustainability of assistance programs.(Lijo John, &Gopalakrishnan Narayanamurthy.2020)

According to sara germew (2020) Collaboration and coordination between the actors operating in the same scene of disaster management is more than necessary; it is an obligation. Due to this lack of coordination many bottlenecks would appear during simultaneous operations in the same affected area.

2.1.5 Literature Gap

In the exploration of existing literature, a noticeable gap emerges with a specific focus on the context of the study area, Ethiopia. A significant portion of the reviewed literature primarily originates from contexts outside of Ethiopia, raising concerns about the generalization and applicability of findings to the specific dynamics of the Ethiopian humanitarian supply chain. Furthermore, a time-related gap becomes apparent, as a considerable number of identified articles are dated, lacking recent perspectives that may reflect evolving practices and challenges. The scarcity of literature specifically rooted in the Ethiopian context limits a detailed understanding of the complexities and unique factors influencing the humanitarian supply chain within the region.

Additionally, some of the reviewed articles predominantly come from the commercial sector rather than the humanitarian sector. This difference is noteworthy, as the dynamics, challenges, and goals within humanitarian supply chains may significantly differ from those in commercial settings. The prevalence of literature from the commercial domain may unintentionally overlook critical aspects and details specific to humanitarian operations, thereby emphasizing the need for more targeted research within the humanitarian sector. Addressing these identified gaps is essential to provide a more contextually relevant and up-to-date understanding of the surrounding humanitarian supply chain management in Ethiopia.

2.1.6 Performance measurement of humanitarian organizations

Establishing a proper performance measurement could have many benefits by identifying the bottleneck in the logistics process, managing the donor's funds effectively, enhancing the emergency and preparedness of actions, and alleviating the suffering of victims during relief activities (Beamon & Balcik, 2008)

According to Atinkson (2012) Performance measurement in the context of humanitarian organizations refers to the systematic and comprehensive process of assessing various aspects of organizational activities to gauge effectiveness, efficiency, and impact.

It involves the collection, analysis, and interpretation of data and information to evaluate how well the organization is achieving its objectives, delivering aid, and responding to humanitarian crises.

While most performance measurement frameworks in humanitarian organization are borrowed from commercial world, Henderson et al(2002).argued that many commercial performance metrics do not apply for humanitarian organizations

Performance measurement and management in humanitarian supply chains is still in its early stages compared to that in business supply chains. There are various performance indicators in the traditional commercial supply chain, yet it might be inappropriate or irrelevant for the unique characteristics of humanitarians to relieve the supply chain's environment (Beamon & Kotleba, 2006).

While the idea of organizational performance is widespread in academic literature, defining it proves challenging due to its numerous interpretations. Consequently, there lacks a universally agreed-upon definition for this concept (Gavrea, Ilies, & Stegerean, 2011).

According to Anne Leslie Davidson (2006) stated that while the beneficiaries themselves may serve as an important source of gauging operational performance, it is usually subjective and should be used with caution. Because the beneficiaries' perceptions may be affected by various factors such as cultural expectations, the unique circumstances of the disaster/event, and how the aid is actually administered, organizations should rely on a more objective and standard basis of performance measurement

To measure performances of an organization different models can be applied. Out of them a popularly accepted performance measurement model developed and endorsed by the supply chain council as a cross industry standard for supply chain management called the Supply Chain Operations Reference (SCOR)

The SCOR model is a framework that groups the phases of supply chain management into 5 management processes: plan, source, make, deliver, return.

In the SCOR model five performance attributes should be considered in assessing the performance of a logistics function in place.

These performance attributes are delivery reliability, responsiveness, flexibility, cost and asset management efficiency. The first three (delivery reliability, flexibility and responsiveness) attributes are those facing towards customers while the next two (cost and asset management efficiency) are those facing towards the organization (Thilakarathna, Dharmawardana and Rupasinghe, 2015).

Another popular accepted model is The Balanced Scorecard Approach originally that emerged in 1992, as a framework for performance measurement in the Harvard Business Review (Kaplan & Norton, 1992). The Balanced Scorecard Approach forces managers to select only a small number of critical measures by which they can gauge performance.these are Customer perspective,Internal Business perspective,Innovation & Learning perspective and Financial perspective. The Balanced Scorecard also excels in forcing organizations to focus on two key issues: first they must examine what their core competencies are, and second, they must look beyond purely financial metrics

While this models provides enough detail and choices of metrics that it may be adaptable to the humanitarian supply chain, it is not the best choice of metric systems mainly because its complexity could hinder its ability to be implemented in a humanitarian organization

Both Lu, Goh, & Souza (2016) and Beamon & Balcik, (2008) explored performance attributes and industry logistics processes. The key aspects of performance in the original SCOR model stated by Anne Leslie Davidson(2006) encompass Reliability, Responsiveness, Agility, Cost, and Asset Management. However, in the specific realm of humanitarian supply chains, all these attributes are considered crucial except for asset management (Lu, Goh, & Souza, 2016). This distinction arises from the characteristic nature of humanitarian organizations, which are typically resource-limited, possessing few fixed assets. Instead, they heavily depend on external resources and capabilities to carry out emergency relief operations.(Beamon & Balcik, 2008).

Hence, This literature adopted the following four performance attributes.

2.1.6.1 Reliability

Reliability refers to the consistency and dependability of the humanitarian supply chain in delivering aid and responding to crises.The reliability shows that the organization could deliver the right supplies in the right quantities and qualities at the right time It involves ensuring that the supply chain can be trusted to perform consistently and effectively, meeting the immediate and long-term needs of disaster-affected populations with a high level of accuracy and precision.(Lu et al., 2016)

2.1.6.2 Responsiveness

Responsiveness is an indicator related to the response time of humanitarian supply chain management. Beamon and Balcik (2008) stated that Responsiveness measures the speed of the humanitarian supply chain in addressing urgent and dynamic situations. It assesses the ability to promptly and efficiently respond to crises, by ensuring timely delivery of aid to affected populations.

2.1.6.3 Cost

Cost in the context of humanitarian supply chain performance refers to the efficient allocation and utilization of resources to deliver aid. This indicator is a chief measure of logistics financial performance. It involves managing expenses and operational costs effectively, optimizing the use of available resources to ensure financial sustainability while maintaining the quality and effectiveness of humanitarian operations (Lu et al., 2016).

2.1.6.4.Agility

Humanitarian relief organizations would face various uncertainties and should rapidly adjust to the needs on the ground.Agility in the humanitarian supply chain context represents the ability to quickly and flexibly adapt to unforeseen challenges and changing circumstances(Beamon & Balcik, 2008).

Agility is also viewed as an increasing power within a changing and unpredictable environment by involving the capacity to adjust strategies, processes, and resource allocation in response to dynamic conditions, ensuring the supply chain remains effective and resilient during emergencies and crises.(Oloruntoba & Kovács, 2015)

2.2 Empirical Literature

A study conducted by Beamon and Balcik (2008) focusing on performance measurements within humanitarian relief chains emphasizes the critical role of performance measurement in NGO accountability, as highlighted by Balcik in a previous work (2004). Performance measurement is deemed essential for securing donor funding (accountability) and enhancing the overall effectiveness of relief missions, with the ultimate goal of saving lives and alleviating human suffering. The objectives of the study include a comparison of performance measurement within relief chains and commercial supply chains, the development of performance metrics tailored for humanitarian relief chains, and the presentation of a comprehensive performance measurement framework specific to relief operations. The proposed performance measurement guidelines often serve as the basis for establishing a performance measurement system within the aid sector.

Legesse Bale and Dr. Shashi Kant conducted a study in 2023 titled "effect of Humanitarian Supply Chain Management Practices on Organizational Performance: A Case Study of Norwegian Refugee Council in West Guji Zone Field Office." The primary objective of this research was to investigate the influence of humanitarian supply chain management practices on organizational performance, specifically focusing on the Norwegian Refugee Council in the West Guji Zone field office.

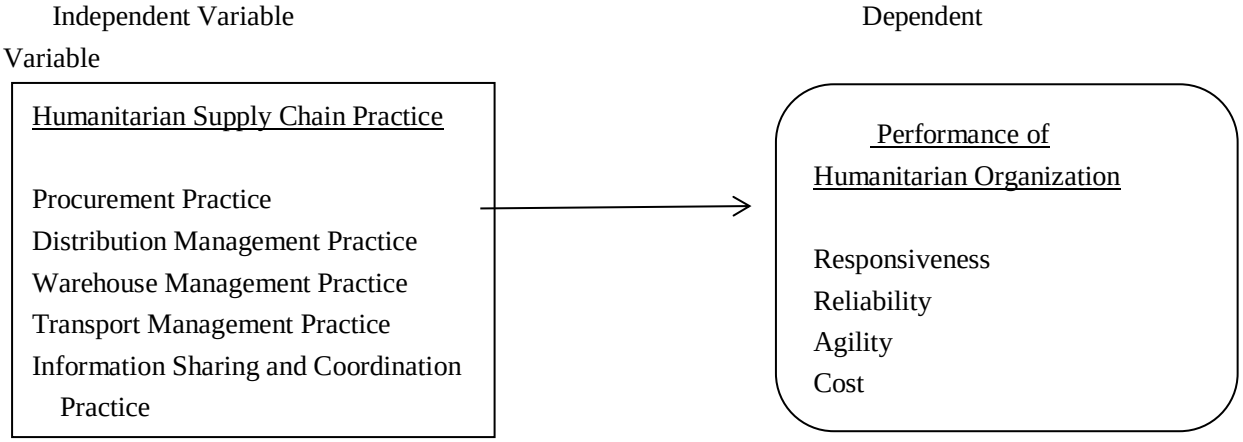
The study's outcomes revealed a robust positive correlation between all independent variables, including supplier information management system, coordination practice, and transportation and distribution practice, and the dependent variable, which is organizational performance.

In kenya, Esther Wasike1 and Dr. Dennis Juma (2020) published a study about Influence of Logistics Management Practices on the Logistic Performance of Humanitarian Organizations in Kakamega County, Kenya with a general objective of establishing the influence of logistic practices on performance of Humanitarian organizations.

According to their findings the study variables, inventory management practices, transportation practices, information sharing practices and warehousing practices have a significant positive relationship with the performance of humanitarian organizations

In another study conducted by Zewdi Yohannes (2021), titled "The Effect of Humanitarian Supply Chain Management Practices on the Performance of Selected UN Organizations' Emergency Response Programs Operating in Ethiopia," the objective was to explore the influence of supply chain management practices on the performance of humanitarian organizations. the study findings concluded that Procurement practices, Transportation practices and distribution practices has a positive impact on performance of humanitarian organisations.

2.3 Conceptual Framework



Source: Adopted from ZEWDI YOHANNES (2021)

Figure 2.1 Conceptual Framework of the study

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter provides an overview of the study, including details about the research area, methods, and design. It explains the population studied, how samples were chosen, and the tools used for collecting data. Additionally, it describes how data was gathered and analyzed, particularly for testing hypotheses.

3.1 Description of The Study Area

3.1.1 Action Against Hunger

Action-Against-Hunger is a non-governmental organization set up in France in 1979 to save lives by combating hunger, diseases and those crises threatening the lives of helpless men, women and children. Responding to the needs of populations affected by natural disasters or armed conflicts and respecting their dignity is central to the mandate of Action Against-Hunger as an international humanitarian organization.

Action-Against-Hunger began operation in Ethiopia in 1985. In 2023 alone, AAH has reached more than 1,441,730 people in the country. Currently, the organization intervenes in situations that involve Nutrition and Health, Food security and Livelihoods (FSL); Mental Health & Care Practices (MHCP), Gender and Protection; Water, Sanitation and Hygiene (WASH). Key donors of Action-Against-Hunger are ECHO, BPRM, UNHCR, OCHA, SIDA, EUROP AID and OFDA

AAH operates in the regions of Amhara, Benshangul Gumuz, Gambella, Oromia, Somali, Tigray, and the city administration of Addis Ababa.(AAH,2023)

3.1.2 Cooperazione Internazionale (COOPI)

COOPI (Cooperazione Internazionale) is an Italian non-governmental organization (NGO) founded in 1965. It operates in various countries worldwide, including Ethiopia.

COOPI focuses on humanitarian aid, development cooperation, and long-term support for communities affected by conflict, natural disasters, and socioeconomic challenges. In Ethiopia, COOPI implements a range of projects aimed at improving livelihoods, food security, access to clean water and sanitation, education, health, and resilience to climate change. Some key areas of intervention include emergency response, food security and livelihoods, water, sanitation, and hygiene (WASH), education, healthcare, resilience building, advocacy, and capacity building.(COOPI,2023)

COOPI Ethiopia collaborates closely with local authorities, communities, and other humanitarian and development actors to implement its projects effectively. The organization emphasizes a participatory approach that involves beneficiaries in project planning, implementation, and monitoring, ensuring that interventions are contextually appropriate and sustainable in the long term. Through its diverse portfolio of activities, COOPI contributes to addressing the multi-faceted challenges faced by vulnerable populations in Ethiopia, with a commitment to promoting dignity, resilience, and lasting positive change.(COOPI,2023)

3.1.3 Imagine1day

Imagine1Day is a non-profit organization dedicated to improving education in Ethiopia. Founded in 2007, Imagine1Day focuses on sustainable development projects aimed at transforming the education system and providing quality education for children and youth across the country. Through collaborative efforts with local communities, government institutions, and other stakeholders, Imagine1Day implements initiatives that address various aspects of education, including infrastructure development, teacher training, curriculum enhancement, and community engagement.

In Ethiopia, Imagine1Day works in partnership with local communities to build and renovate schools, provide access to educational resources and materials, and support teacher training programs.

The organization also emphasizes the importance of community involvement in education, empowering parents, caregivers, and community members to actively participate in school governance and decision-making processes. By fostering a sense of ownership and responsibility among stakeholders.

Imagine1Day aims to create a supportive and inclusive learning environment that enables children to thrive and reach their full potential.(Imagine 1 Day,2023)

3.2 Research Approach

This study employs a quantitative approach to investigate the impact of humanitarian supply chain practices on the performance of selected Ethiopian organizations. Using closed-ended questions in the questionnaire ensures precision and reliability. Statistical tools will be applied for a rigorous analysis of the identified relationships, aligning with the study's objectives.

3.3 Research design

The selected research design for this proposal is a an explanatory design, aimed at exploring causal relationships between humanitarian supply chain practices and the performance of the humanitarian supply chain (HSC) among selected organizations in Ethiopia. This design allows for a deeper investigation into underlying mechanisms and factors influencing these relationships over time by providing insights into cause-and-effect relationships, contributing to theory-building in this field.

3.4 Population and Sampling

The participants for this study consist of employees from three international humanitarian organizations: AAH, COOPI, and I1D. The target population comprises technical staff members involved in supply chain management, including warehouse assistants, transport assistants, supply chain assistants, procurement assistants, finance assistants, warehouse officers, transport officers, supply chain officers, procurement officers, finance officers, senior warehouse officers, senior transport officers, senior supply chain officers, senior procurement

officers,Senior Finance officers, operation and admin managers, logistics managers, ICT officers, and ICT managers.

As per information provided by the HR departments of the selected organizations, the total population for this study is 77 employees.

The study did not undertake extensive statistical calculations to determine the sample size. Instead, it opted for a census method, considering the limited size of the study population. By employing a census approach, the study aimed to include all eligible individuals within the defined population, ensuring comprehensive coverage and representation. Despite the absence of traditional sample size calculations, the census method offers a robust approach for data collection within smaller study populations, facilitating a thorough examination of the research objectives.

Table 3.1. Lists of Sample size proportion in each organization

S.NO	**Name of International Humanitarian Organization**	**Total Population of Employees**
1	**COOPI**	**25**
2	**AAH**	**28**
3	**Imagine1 Day**	**24**
Total		**77**

Source: Own survey(2023)

3.5 Data Source and type

To conduct this study, both primary and secondary data sources is utilized. Primary data is gathered through structured questionnaires and interviews, while secondary data is collected from relevant documents pertaining to the research topic. These documents include annual reports, journals, and other publications related to the investigation of the study's topic.

3.6 Data collection and instrument

In this study, first-hand information is obtained through the collection of primary data from the targeted population using self-administered survey questionnaires. A close-ended questionnaire will serve as the measuring instrument, comprising two sections. The first section focus on gathering demographic information about the respondents and their organizations, while the second section will address the research objectives. The questionnaire will be structured as a Likert scale, allowing respondents to express their views on a scale of 1 to 5, ranging from 'strongly disagree' to 'strongly agree'."

Throughout the data collection phase, respondents provide their responses in hard copy during in-person interactions. Additionally, Clear communication was provided to participants regarding the significance of their involvement, the purpose of data collection, and the timeline for processing and publishing the results.

3.7 Data Analysis

The collected data went through systematic organization and review to ensure completeness following the conclusion of the data collection process. Additionally , the data was sorted and coded to facilitate analysis. Utilizing the Statistical Package for Social Sciences (SPSS) software, The researcher analyzed the data using descriptive statistics such as mean, median, percentage, and standard deviation to understand the demographic characteristics of the data set. Additionally, inferential statistics, including correlation and regression analysis, is employed to uncover relationships and patterns within the data. These analyses help in achieving the study's objectives by providing deeper insights

3.8 Scale Reliability and Validity

To ensure the reliability of the instrument, Cronbach’s Alpha is employed to assess the internal consistency of the questionnaire items. This analysis provide a measure of the reliability of the collected data, ensuring that the questionnaire accurately captures the intended constructs and minimizes measurement error.

Cronbach's alpha has been described as 'one of the most important and pervasive statistics in research involving test construction and use (Cortina, 1993, p. 98), underscoring its significance in establishing the reliability of research instruments.

The reliability coefficient, Cronbach's alpha, ranges from 0 to 1. A coefficient closer to 1 indicates higher internal consistency of the scale's items. Values of alpha at or above 0.70 are deemed acceptable, as per Cronbach (1951). Table demonstrates that the Cronbach's alpha coefficients for all dependent and independent variables exceed 0.70, verifying the reliability of the instrument used in this study.

Table 3.2 Reliablity Test

S.n	Variables	No.of items	Cronbach's Alpha Coefficient
1	Procurement	7	0.839
2	Distribution	6	0.830
3	Warehouse Management	5	0.811
4	Transportation	5	0.867
5	Information sharing and Coordination	5	0.780
6	Performance	12	0.763
Total reliability		40	**0.947**

Source: Own survey (2024)

Validity refers to the extent to which a research instrument accurately measures the constructs it is intended to measure (Lynn, M. 1986).

In this study, validity was ensured through several strategies. First,content validity was established carefully aligning the questionnaire items with the research objectives and the theoretical framework derived from the literature review.Each item was designed to capture specific aspects of the constricts under investigation, ensuring comprehensive coverage of the intended concepts.

Additionally, to validate the face validity, the questionnaire items was reviewed by various supply chain experts and scholars specializing in Humanitarian aid.

3.9 Ethical Considerations

Throughout the data collection phase, All data collected from participants is treated with the top confidentiality, ensuring that their privacy is protected at all times. Measures are implemented to securely store and handle sensitive information. Participants where assured that their responses will be aggregated and reported in a manner that prevents individual identification.

Additionally, prior to their participation, all individuals where informed about consent through a cover letter. This letter will clearly outline their voluntary involvement in the study and emphasize their right to withdraw from participation at any point.

CHAPTER FOUR

DATA ANALYSIS, RESULT, DISCUSSION AND INTERPRETATION

INTRODUCTION

This chapter presents the analysis, interpretation, and discussion of the study's results as outlined in the research methodology. Data was collected exclusively through a questionnaire designed to align with the study's objectives.Respondents rated the extent to which various practices were implemented using a five-point Likert scale. Descriptive statistics were employed to analyze demographic factors and Humanitarian Supply Chain Management (HSCM) practices. Additionally, Pearson correlation analysis was conducted to measure the relationships between the variables. Regression analysis was also utilized to assess the impact of the independent variables on the dependent variables.

4.1 Response Rate

A total of 77 questionnaires were deployed. Out of which 75 questionnaires were returned after duly checking for any inconsistencies 4 questionnaires were found to be incomplete and were therefore disregarded making the complete filled out questionnaires 71.

Table 4.1 Response rate

Category	Amount	Percentage
Complete questionnaires	71	97.4%
Un returned questionnaires	2	0.025%
In complete questionnaries	4	0.05%
Total	77	100%

Source: Research Data, 2024

4.2 Demographic Information of the Respondents

4.2.1 Gender of Participants

Table 4.2 Respondents Gender

		Frequency	Percent
Valid	Male	34	47.9
	Female	37	52.1
	Total	71	100.0

Source: Own Survey, 2024

Table 4.2 illustrates the gender distribution of the 71 participants in the study. Female participants slightly outnumber male participants, with 52.1% (37 individuals) compared to 47.9% (34 individuals).

4.2.2 Age of Participants

Table 4.3 Participants age

		Frequency	Percent
Valid	18-25	11	15.5
	26-35	18	25.4
	36-45	30	42.3
	Above 45	12	16.9
	Total	71	100.0

The data table above depicts the distribution of respondents across different age categories. It shows that the highest percentage of respondents, comprising 42.3%, fall within the age range of 36-45 years. Following this, the 26-35 age group represents 25.4% of the respondents, while the 18-25 age group constitutes 15.5%. Additionally, respondents aged above 45 years account for 16.9% of the total sample. This distribution illustrates a varied representation across age groups among the participants, indicating a diverse demographic profile within the study sample.

4.2.3 Educational Background

Table 4.4 Respondents education background

		Frequency	Percent
Valid	Diploma	11	15.5
	Degree	38	53.5
	Masters	22	31.0
	Total	71	100.0

Source: Own Survey, 2024

Table 4.4 presents the educational qualifications of the 71 respondents. A majority, 53.5%, hold a Degree, with 38 respondents in this category. This is followed by 31.0% holding a Master's degree, accounting for 22 respondents. Those with a Diploma constitute 15.5%, or 11 respondents. This distribution highlights a well-educated sample, with a significant proportion having advanced degrees, which could positively influence the quality of insights gathered in the study on humanitarian supply chain practices.

4.2.4 Work position of participants

Table 4.5 participants work position

		Frequency	Percent
Valid	Procurement Staff	14	19.7
	Transportation staff	15	21.1
	Warehouse Staff	14	19.7
	Admin Staff	15	21.1
	Finance Staff	13	18.3
	Total	71	100.0

Source : Own Survey, 2024

As shown on the table, the distribution of work positions among the 71 respondents. Transportation Staff and Admin Staff are the largest groups, each comprising 21.1% of the sample, with 15 respondents each. Procurement Staff and Warehouse Staff each represent 19.7%, with 14 respondents apiece. Finance Staff is the smallest group, accounting for 18.3% with 13 respondents. This diverse distribution across various roles ensures a broad range of perspectives, enhancing the comprehensiveness of the analysis of humanitarian supply chain practices and performance.

4.2.5 Total Number of Experience of participants

Table 4.6 Participants total number of experience

		Frequency	Percent
Valid	0-5	21	29.6
	6-15	32	45.1
	Above 15 Years	18	25.4
	Total	71	100.0

Source own survey, 2024

The data table presents the distribution of respondents based on their total number of years of experience. It reveals that the majority of respondents, comprising 45.1%, have an experience ranging from 6 to 15 years. Following this, 29.6% of respondents have an experience of 0-5 years, while 25.4% have experience exceeding 15 years. This distribution demonstrates a diverse range of experience levels among the participants, with a significant proportion having moderate levels of experience between 6 and 15 years.

4.3 Descriptive Analysis of Humanitarian supply chain practices and performance

Primary data was gathered from respondents regarding Supply Chain Management practices within their organizations, focusing on procurement, transportation, warehouse management, distribution, and information sharing and coordination. Additionally, performance metrics such as responsiveness, reliability, cost, and agility were assessed. Respondents provided their feedback using a five-point Likert scale.

According to Field (2009), a mean value of 1 to 1.80 indicates strong disagreement; 1.81 to 2.60 indicates somewhat disagreement; 2.61 to 3.40 indicates neutrality; 3.41 to 4.20 indicates somewhat agreement; and 4.21 to 5.00 indicates strong agreement. The 0.8 intervals serve as boundaries for each category in the questionnaire.

The descriptive findings are discussed below.

4.3.1Mean and Standard Deviation of Responses on Procurement Practice

The analysis of procurement practices among the surveyed organizations reveals a generally high level of agreement on various aspects, though some variability exists.

Pre-positioning supplies in advance of disasters shows strong implementation, with a mean of 4.00 and a standard deviation of 0.941, indicating consistent practice but with some variability.

Evaluating suppliers based on past performance, ethical standards, and delivery efficiency is highly agreed upon, with a mean of 4.30 and a standard deviation of 0.868, suggesting uniformity in supplier evaluation criteria.

The integration of information technology in procurement processes exhibits more variability, with a mean of 3.82 and a standard deviation of 1.125, indicating differing levels of adoption across organizations.

Ethical procurement behavior, including transparency and trust, is generally practiced, with a mean of 4.07 and a standard deviation of 0.851, showing a strong but not universal commitment.

Clear communication of product specifications for rapid relief is highly consistent, with a mean of 4.35 and a standard deviation of 0.588, indicating this practice is well-established. The strategic alignment of procurement plans with organizational objectives also shows strong agreement, with a mean of 4.38 and a standard deviation of 0.834, reflecting a strategic approach to procurement.

However, the implementation of electronic procurement systems reveals moderate agreement, with a mean of 3.72 and a standard deviation of 0.831, suggesting there is room for improvement in this area. Overall, while some procurement practices are consistently implemented across the organizations, others show variability, indicating potential areas for enhancement to achieve greater uniformity and efficiency in procurement processes.

Table 4.7 Descriptive statistics of procurement practice

Descriptive Statistics

	N	Mean	Std. Deviation
Our Organization practices pre positioning supplies in advance of disasters.	71	4.00	.941
We evaluate suppliers based on past performance, ethical standards, and delivery efficiency On our supplier selection process.	71	4.30	.868
We integrate information technology in our procurement processes.	71	3.82	1.125

We practice Ethical procurement behavior, including transparency, conflict avoidance, trust and collaboration within our supply chain activities.	71	4.07	.851
We clearly define and communicate the specifications needed for products we use in rapid relief.	71	4.35	.588
We Implement electronic procurement systems that facilitates real-time communication and expedites transaction processing.	71	3.72	.831
We Strategically align our procurement plans with our organizational objectives.	71	4.38	.834
Grand Mean	71	4.09	

Source: Spss output survey, 2024

4.3.2 Mean and Standard Deviation of Responses on Distribution Practice

The analysis of distribution practices among the surveyed organizations indicates a generally positive outlook, with mean scores ranging from 3.92 to 4.34, suggesting a consistent level of adoption of various aspects of distribution practices.

Firstly, the practice of structuring distribution teams to enable on-the-spot situational decision-making shows a moderate level of implementation, with a mean score of 3.92 and a standard deviation of 0.712,The relatively low standard deviation indicates a lower level of consistency in responses.

Strategically locating distribution centers and points in established community centers and meeting places also receives high adoption, with a mean score of 4.28 and a standard deviation of 0.740, suggesting a relatively higher variance than the other distribution practices.

Prioritizing the efficiency of last-mile distribution has a moderate level of implementation, with a mean score of 3.94 and a standard deviation of 0.674, The low standard deviation suggests a high level of consistence among respondents.

Flexible distribution strategies that enable quick adaptation to changing conditions and needs also show strong implementation, with a mean score of 4.07 and

a standard deviation of 0.704, This suggests a moderate level of consistency in responses.

Furthermore, the practice of minimizing the number of distribution points to reduce beneficiary travel distance exhibits a high level of agreement, with a mean score of 4.24 and a standard deviation of 0.665, The standard deviation indicating the most relatively uniform approach across organizations.

Finally, the fair distribution of commodities to beneficiaries according to specified rations and selection criteria is the most Highly implemented, with a mean score of 4.34 and a standard deviation of 0.696, The low standard deviation suggests a high level of agreement among respondents.

Table 4.8 Descriptive statistics of distribution practice

Descriptive Statistics

	N	Mean	Std. Deviation
We practice structuring our distribution team to enable on-the-spot situational decision-making.	71	3.92	.712
We always Strategically locate distribution centers and points in established community centers and meeting places.	71	4.28	.740
We practice prioritizing the efficiency of last-mile distribution to ensure that goods and assistance reach their final destinations promptly.	71	3.94	.674
We practice Flexible distribution strategies that enable quick adaptation to changing conditions and need.	71	4.07	.704
We practice minimizing the number of distribution points to reduce the distance beneficiaries need to travel.	71	4.24	.665
We practice fair distribution of commodities to beneficiaries according to specified rations and selection criteria.	71	4.34	.696
Grand Mean	71	4.13	

Source: SPSS output Survey, 2021

4.3.3 Mean and Standard Deviation of Responses on Warehouse management Practice

The below descriptive table analysis provides valuable insights into the warehouse practices among the surveyed organizations.

With a mean score of 4.20, organizations exhibit a high level of commitment to strategically locating warehouses for optimal accessibility to affected areas.

The relatively low standard deviation of 0.904 indicates a moderate level of consensus among respondents regarding this practice. Similarly, with a mean score of 4.37 and a standard deviation of 0.760, organizations demonstrate strong adherence to implementing robust security measures to ensure the safety and integrity of stored goods. The low standard deviation suggests a high level of agreement among respondents on this practice.

Regarding climate control measures, the mean score of 3.87 suggests a moderate level of implementation in preventing spoilage and preserving the quality of sensitive items. However, the relatively high standard deviation of 0.940 indicates some variability in responses, reflecting potential differences in organizational priorities.

In terms of warehouse placement to reduce transportation time, the mean score of 3.83 and standard deviation of 1.146 indicate a moderate level of adherence, with greater variability in responses.

Lastly, the mean score of 3.65 for conducting regular security audits suggests a moderate level of commitment, although the standard deviation of 0.987 implies variability in approaches among organizations.

Table 4.9 Descriptive statistics of warehouse practice

Descriptive Statistics

	N	Mean	Std. Deviation
We practice strategically locating our warehouses to optimize accessibility to affected areas.	71	4.20	.904
We Implement of robust security measures ensures the safety and integrity of stored goods.	71	4.37	.760

We Practice climate control measures in warehouses prevent spoilage and preserve the quality of sensitive items.:	71	3.87	.940
We practice placing our warehouses to reduce transportation time and enhance overall supply chain efficiency.	71	3.83	1.146
We practice regular security audits and improvements to maintain the trust of stakeholders and prevent disruptions to the supply chain.	71	3.65	.987
Grand Mean	71	3.98	

Source: SPSS output survey,2024

4.3.4 Mean and Standard Deviation of Responses on Transportation Practice

Table 4.9 descriptive statistics analysis provides insights into the transportation practices among the surveyed organizations.

The first which is about regarding the usage of multi-modal transportation, including unconventional modes such as governmental resources during emergencies, organizations exhibit a moderate level of adherence, as indicated by the mean score of 3.73 and standard deviation of 1.207. This suggests some variability in responses, possibly reflecting differing capacities and resources among organizations.

Similarly, for accessing a diverse fleet of vehicles to enhance flexibility and responsiveness, the mean score of 3.79 and relatively low standard deviation of 0.893 indicate a moderate level of implementation, with a fair degree of consensus among respondents on this practice.

In terms of collaborating with external transport service providers to increase capacity during emergencies, organizations demonstrate a slightly higher level of adherence, with a mean score of 3.83 and a standard deviation of 0.793. This suggests a relatively lowest variance among respondents..

Thorough planning to ensure safe and timely transportation of supplies receives a higher mean score of 4.14, indicating a stronger commitment among organizations

to this practice. The standard deviation of 0.930 suggests a moderate level of variability in approaches to planning.

Lastly, evaluating urgency, type of supplies, and destination distance when deciding transportation methods receives a mean score of 4.15, indicating a high level of adherence to this practice.

The relatively low standard deviation of 0.839 suggests a good degree of consensus among respondents on the importance of considering various factors in transportation decision-making.

Table 4.10 Descriptive statistics of Transportation practice

Descriptive Statistics

	N	Mean	Std. Deviation
We practice the usage of multi modal transportation, including unconventional modes such as governmental resources during emergencies.	71	3.73	1.207
We practice accessing a diverse fleet of vehicles to enhance flexibility and responsiveness.	71	3.79	.893
We practice collaborating with external transport service providers to increase our capacity during emergencies.	71	3.83	.793
We practice thorough planning to ensure that transportation of supplies is safe and timely.	71	4.14	.930
We practice evaluating the urgency, type of supplies, and destination distance when deciding transportation methods.:	71	4.15	.839
Grand Mean	71	3.92	

Source: SPSS output survey, 2024

4.3.5 Mean and Standard Deviation of Responses on Information sharing and Coordination Practice

The below descriptive statistics analysis table provides insights into the information sharing and coordination practices among the surveyed organizations. Comparing the responses to the respective questionnaire items, we observe that the mean scores and standard deviations vary across different practices related to information sharing and coordination.

Table 4.11 Descriptive statistics of Information Sharing and Coordination practice

Descriptive Statistics

	N	Mean	Std. Deviation
We Implement secure communication channels, including encryption technologies, that ensures the integrity and confidentiality of shared information.	71	4.17	.810
We Integrate advanced technologies, such as real-time data management systems and mobile applications.	71	4.03	.861
We practice tracking capacities, goods, and delivery statuses through our information systems.	71	4.00	.697
We practice coordination with stakeholders, including NGOs and government agencies, to respond quickly to changes and emergencies.	71	4.20	.768
We practice engaging with the community to understand their unique needs and incorporate their insights into our decision-making processes.	71	4.27	.716
Total	71	4.13	

Source : SPSS output Survey, 2024

Firstly, the practice of implementing secure communication channels, including encryption technologies, shows a strong commitment with a mean score of 4.17 and a standard deviation of 0.810. The relatively high mean score indicates that organizations prioritize maintaining the integrity and confidentiality of shared information. The standard deviation suggests a moderate level of consistency among the organizations.

Secondly, the integration of advanced technologies, such as real-time data management systems and mobile applications, has a mean score of 4.03 and a standard deviation of 0.861. This suggests that while there is a good level of technology adoption, variability exists. The mean score reflects a generally positive trend towards technology integration, but the standard deviation indicates that some organizations are more advanced in this area than others.

Thirdly, the ability to track capacities, goods, and delivery statuses through information systems is moderately practiced, with a mean score of 4.00 and a lower standard deviation of 0.697.The mean score indicates that most

organizations have these systems in place, while the relatively lower standard deviation suggests less variability and more consistency in this practice compared to other areas.

Fourthly, coordination with stakeholders, including NGOs and government agencies, is highly rated with a mean of 4.20 and a standard deviation of 0.768. The high mean score reflects strong performance in stakeholder coordination, with moderate variability.

Lastly, engaging with the community to understand their unique needs and incorporating their insights into decision-making processes has the highest mean score of 4.27 and a standard deviation of 0.716. The high mean score shows a strong focus on community engagement, and the relatively low standard deviation indicates that this practice is consistent.

4.3.6 Mean and Standard Deviation of Responses on Responsiveness

The descriptive statistics for the responsiveness practices indicate generally strong performance among the surveyed organizations.

Firstly, the practice of promptly addressing and responding to beneficiary needs has a mean score of 3.94 with a standard deviation of 0.826. This shows a good overall efficiency, though there is some variability among organizations.

Secondly, maintaining a high level of readiness to respond to emergencies has a mean score of 4.08 and a standard deviation of 0.712. This reflects strong and consistent readiness across organizations.

Lastly, ensuring that the organization's response meets planned timelines has the highest mean score of 4.20 and a standard deviation of 0.768, indicating success in adhering to response plans with moderate variability.

Table 4.12 Descriptive statistics of Responsiveness

Descriptive Statistics

	N	Mean	Std. Deviation
Our organization promptly adresses and responds to beneficiary needs efficiently.	71	3.94	.826

Our organization maintains a high level of readiness to respond to emergencies.	71	4.08	.712
Our organizations response is justified as per plan (meeting a set time frame)	71	4.20	.768
Grand Mean	71	4.07	

Source: SPSS output survey,2024

4.3.7 Mean and Standard Deviation of Responses on Reliability

The descriptive statistics for organizational reliability practices indicate strong performance. Ensuring accurate and complete aid deliveries has a mean score of 4.08 with a standard deviation of 0.732, demonstrating high reliability with moderate variability. Consistently meeting commitments to beneficiaries and donors scores a mean of 4.04 and a standard deviation of 0.685, reflecting consistent performance with low variability. Addressing complaints during supply chain operations has a mean of 4.03 and a standard deviation of 0.755, indicating effective issue resolution with moderate variability.

Table 4.13 Descriptive statistics of Reliability

Descriptive Statistics

	N	Mean	Std. Deviation
Our organization ensures that aid deliveries are accurate and complete.	71	4.08	.732
Our organization consistently meets its commitments to beneficiaries and donors.	71	4.04	.685
Our organisation addresses all complaints reported during the execution of the supply chain operation.	71	4.03	.755
Grand Mean	71	4.05	

Source: SPSS output survey,2024

4.3.8 Mean and Standard Deviation of Responses on Agility

The descriptive statistics reveal commendable performance in organizational flexibility practices. With a mean score of 4.13 and a standard deviation of 0.695, the organization demonstrates agility in swiftly adapting strategies to evolving needs on the ground.

Additionally, maintaining flexibility in operations to address unforeseen challenges achieves a mean of 4.04 and a standard deviation of 0.685, indicating consistent adaptability with minimal variability. Utilizing multiple channels and methods for effective aid delivery yields a mean score of 4.01 and a standard deviation of 0.686, reflecting versatile approaches with low variability.

Table 4.14 Descriptive statistics for Agility

Descriptive Statistics

	N	Mean	Std. Deviation
Our organization quickly adapts strategies to changing needs on the ground.	71	4.13	.695
Our organization maintains flexibility in operations to address unforeseen challenges.	71	4.04	.685
Our organization utilizes multiple channels and methods to deliver aid effectively.	71	4.01	.686
Grand Mean	71	4.06	

Source: SPSS output survey, 2024

4.3.9 Mean and Standard Deviation of Responses on Cost

The Below descriptive statistics table reveal favorable financial management practices within the organizations.

For the question regarding the efficient utilization of financial resources to achieve the mission, the mean score of 4.11 and a standard deviation of 0.854 indicate a consistent and effective approach to resource allocation. Similarly, achieving a high return on investment for humanitarian projects is evident from the mean score of 4.15 and a low standard deviation of 0.669, indicating a robust and successful track record in delivering impactful outcomes. Furthermore, the organization's efforts to minimize overhead and administrative costs to maximize aid delivery are reflected in the mean score of 4.06 and a standard deviation of 0.652, suggesting prudent financial management practices.

Table 4.15 Descriptive statistics of cost

Descriptive Statistics

	N	Mean	Std. Deviation
Our organization's financial resources are used efficiently to achieve our mission.	71	4.11	.854
Our organization achieves a high return on investment(achievements) for humanitarian projects.	71	4.15	.669
Our organization minimizes overhead and administrative costs to maximize aid delivery.	71	4.06	.652
Grand Mean	71	4.10	

Source: SPSS output survey,2024

4.4 Humanitarian Supply Chain Management Practice and Organizational Performance

4.4.1 Co relation analysis

To gain valuable insights into the relationships between various humanitarian supply chain practices and overall performance, this study utilized Pearson correlation.

According to Binder A (1959), Pearson correlation measures the linear relationship between two b variables, represented by the coefficient r. The value of r ranges from -1 to 1, with +1 indicating a perfect positive linear relationship, -1 indicating a perfect negative linear relationship, and 0 indicating no linear relationship. The significance (p-value) associated with the correlation coefficient indicates whether the observed relationship is statistically significant. The strength of the Pearson correlation coefficient can be categorized as follows: 0.0-0.19 is considered very weak, 0.2-0.39 is weak, 0.4-0.59 is moderate, 0.6-0.79 is strong, and 0.8-1 is very strong. Table below describes the correlation between the independent variable (HSCM practices) and the dependent variable (performance indicators.

Table 4.16 Co relations between performance and humanitarian supply chain management

Correlations

		Procurement	Distribution	warehouse	transport	Information sharing and cordination	Performance
Performance of the organisations	Pearson Correlation	.726**	.585	.806**	.621**	.427**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	
	N	71	71	71	71	71	71

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source : SPSS output survey, 2024

The correlation between procurement practices and performance is 0.726, indicating a strong positive relationship.

This high coefficient suggests that improvements in procurement practices are strongly associated with enhanced performance in humanitarian supply chain operations. The significance value ($p < 0.001$) confirms the statistical significance of this correlation.

Distribution practices show a correlation of 0.585 with performance, indicating a moderate positive relationship. This suggests that better distribution practices are moderately associated with improved performance. The significance value ($p < 0.001$) further supports the statistical significance of this relationship.

Warehouse practices have the highest correlation with performance at 0.806, indicating a very strong positive relationship. Effective warehouse management practices are highly correlated with superior performance, and the significance value ($p < 0.001$) confirms the statistical significance of this strong correlation.

Transport practices exhibit a correlation of 0.621 with performance, indicating a strong positive relationship. This suggests that improvements in transportation logistics significantly enhance performance. The significance value ($p < 0.001$) supports the statistical significance of this correlation.

Information sharing and coordination practices show a correlation of 0.427 with performance, indicating a moderate positive relationship. This suggests that better practices in information sharing and coordination are moderately associated with improved performance. The significance value ($p < 0.001$) confirms the statistical significance of this relationship.

4.4.2 Regression Analysis

Regression analysis is a powerful statistical technique used to examine the relationship between a dependent variable and one or more independent variable. (Benjamin Meleca 1970). It aims to understand how changes in the independent variables are associated with changes in the dependent variable. The fundamental idea behind regression analysis is to create a mathematical model that represents the relationship between the variables. This model allows researchers to make predictions about the dependent variable based on the values of the independent variables.

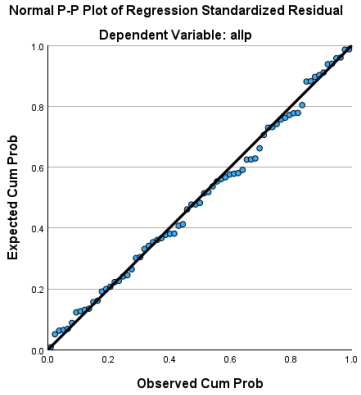
Therefore, regression analyses were employed by the researcher to test the hypotheses of the study, as this method was deemed the most suitable. The regression analysis involved examining the relationship between humanitarian supply chain management practices (independent variables) and their impact on humanitarian supply chain performance (dependent variable). The findings of the regression analysis are outlined below.

4.4.2.1 Normality distribution test

For multiple regression analysis to be effective, it is necessary for the independent variables to exhibit a normal distribution. This assumption is crucial for assessing whether the data follows a normal distribution pattern. To verify this assumption, the researcher utilized a normal probability plot (NPP).

A straight-line shape on the NPP indicates that the variables conform to a normal distribution pattern, as noted by Imon (2015).

Figure 4.1 Normality P Plot test



Source: SPSS output survey, 2024

The normal probability plot in Figure 4.1 indicates that the residuals are distributed in a manner consistent with normality. This suggests that the assumption of normality for the regression analysis is supported by the data. Consequently, it can be inferred that the model used in the study is appropriate, and the results derived from it are reliable concerning normality considerations.

4.4.2.2 Multicollinearity Test

Multicollinearity refers to the phenomenon where two or more predictor variables in a regression model are highly correlated with each other, leading to instability in estimation and difficulties in interpreting the model coefficients. The presence of multicollinearity can distort the estimation of regression coefficients, leading to inaccurate or unreliable results.

In this, the researcher employed various techniques to assess multicollinearity, such as variance inflation factors (VIF), and tolerance.

According to Sekaran and Bougie (2013), the tolerance value should exceed 0.1, while the VIF should be below 10. These thresholds serve as benchmarks for assessing multicollinearity within the regression model, ensuring the reliability of the analysis results.

Table 4.17 Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Procurement	.427	2.344
	Distribution	.713	1.403
	warehouse	.340	2.945
	transport	.763	1.311
	Information sharing and coordination	.739	1.353

a. Dependent Variable: Performance

Source: SPSS output Survey,2024

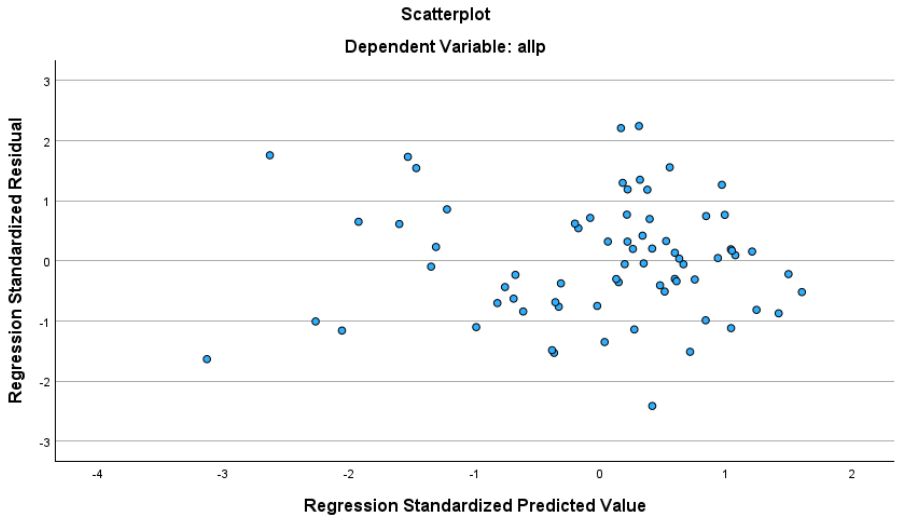
The values presented in Table 4.7 indicate that all tolerance values for the four independent variables exceed 0.1. This suggests that the variables do not significantly influence each other, affirming the suitability of conducting the regression analysis. Additionally, the variance inflation factor (VIF) values for all variables are below 10. Consequently, it can be inferred that multicollinearity is not a significant issue in the model, further supporting the validity of the regression analysis.

4.4.2.3 Homoscedasticity Test

As stated by Imon (2015) The homoscedasticity test examines whether the variance of errors remains consistent across various levels of the independent variables. In essence, it ensures that errors are uniformly distributed across the predictor variables. This is evident when the spread of variance around the regression line shows uniformity across all values of the independent variable.

Homoscedasticity can be assessed by visually inspecting a plot of the standardized residuals against the regression standardized predicted value. In the figure below, while the residuals appear scattered, their consistency is indicated by the relatively uniform spacing between them.

Figure 4.2 Scatter plot test



Source: SPSS output survey,2024

4.4.3 Regression Model

Table 4.18 Regression Model

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.946[a]	.894	.886	.19111

a. Predictors: (Constant),Procurement, Distribution, Transportation, Warehouse and Information and Coordination

b. Dependent Variable: Performance

Source: SPSS survey output,2024

The model summary presents the results of a regression analysis with 'performance' as the dependent variable and 'procurement', 'distribution', 'warehouse', 'transport', and 'information sharing and coordination' as the independent variables. The R value of 0.946 indicates a very strong positive correlation between these independent variables and the dependent variable, performance. R Square value of 0.894 suggests that approximately 89.4% of the variance in the performance can be explained by the combined effect of procurement, distribution, warehouse, transport, and information sharing and coordination practices. The Adjusted R Square value of 0.886, which adjusts for the number of predictors, confirms the high explanatory power of the model while accounting for potential over fitting.

The standard error of the estimate, 0.19111, indicates the average distance that the observed values fall from the regression line, reflecting a relatively low level of prediction error.

This also implies that 11.6% of the variance in performance is attributed to other factors not included in the model.

4.4.4 Regression Coefficients

As stated by Thomas. B (2002), a P value lower than .05 (such as .01 or .0001) indicates that the variable significantly contributes to predicting the dependent variable. On the other hand, a P value higher than .05 suggests that the variable does not make a significant unique contribution. This lack of significance could be due to overlap with other independent variables within the model.

The standardized beta coefficient, often denoted as β, in regression analysis represents the measure of the relationship between an independent variable and a dependent variable. It indicates the change in the dependent variable for a one-unit change in the independent variable, while holding all other variables constant. In other words, it shows the relative importance or contribution of each independent variable to the variation in the dependent variable. A beta coefficient of 0 suggests no relationship, while a positive coefficient indicates a positive relationship and a negative coefficient indicates a negative relationship. It helps to compare the relative impact of different variables on the outcome of interest.(Bowman,2012)

Table 4.18 Regression Coefficient table

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.092	.277		-3.936	<.001
	Information and coordination	.180	.047	.179	3.825	<.001
	Distribution	.193	.054	.245	3.543	<.001
	Warehouse	.276	.034	.371	8.049	<.001
	Transport	.335	.053	.304	6.362	<.001

Procurement	.290	.056	.319	5.171	<.001

a. Dependent Variable: Performance

Source: SPSS output survey, 2024

Table 4.18 provides information on the significance levels (Sig.) and standardized coefficients (Beta) for each independent variable (Information and Coordination, Distribution, Warehouse, Transport, and Procurement) in relation to the dependent variable (Performance). A significant result ($p < 0.001$) indicates a strong relationship between the supply chain practice and organizational performance. The Beta coefficient represents the standardized effect size of each predictor on the outcome variable. Among the supply chain practices, warehouse management exhibits the highest Beta coefficient of 0.371, indicating its significant influence on performance. Following closely are procurement (Beta = 0.319) and transport (Beta = 0.304), both contributing significantly to organizational performance. Distribution (Beta = 0.245) and Information and Coordination (Beta = 0.179) also demonstrate substantial impacts on performance,by to a slightly lesser extent. These findings underscore the critical role of various supply chain practices in enhancing organizational performance, with warehouse management exhibiting the most significant influence.

Overall, The data interpretation reveals that all independent variables procurement, distribution, warehouse management, transport, and information sharing and coordination have a positive effect on organizational performance. The correlation and regression analyses confirm significant positive relationships between each practice and performance metrics. Consequently, this means that all the hypotheses proposed in the study are accepted, underscoring the importance of these supply chain management practices in enhancing the performance of humanitarian organizations.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

INTRODUCTION

This chapter presents a summary of the study's findings, followed by conclusions drawn from these results. The researcher also provides recommendations based on the findings and suggests directions for future research.

5.1 Summary of findings

The main objective of this study was to investigate how Humanitarian Supply Chain Management (HSCM) practices impact the performance of three selected international humanitarian organizations: AAH, COOPI, and I1Day. Specifically, the study aimed to understand the influence of various HSCM practices including procurement, distribution, warehouse management, transportation, and information sharing and coordination on performance indicators such as responsiveness, reliability, agility, and cost . Through a detailed analysis of the data presented in Chapter Four, the summary of major findings are presented as follows.

Among the 71 respondents, the demographic information reflects a diverse array of respondents participating in the study. Gender representation is balanced, with both males and females contributing. Age-wise, respondents cover a broad spectrum, with a significant proportion falling within the 36-45 age bracket. Educationally, the respondents hold varied qualifications, ranging from diplomas to master's degrees, indicating a well-educated sample. Work positions are distributed across various departments, including procurement, transportation, warehouse management, administration, and finance.

Furthermore, the experience levels among respondents vary, with some individuals being relatively new to the field while others bring extensive expertise. This rich diversity of backgrounds and experiences enhances the depth and breadth of insights into humanitarian supply chain practices and performance.

The first specific objective of this research was to empirically test the effect of procurement practices on organizational performance. Based on the descriptive analysis, it is evident that the respondents' mean score for procurement practices is 4.09, indicating a favorable perception of these practices among participants. Moreover, correlation analysis revealed a significant and robust correlation between procurement practices and organizational performance, with a correlation coefficient of 0.726 and a significance value below 0.01. Additionally, regression analysis identified procurement practices as a strong predictor of organizational performance, with a beta coefficient of 0.319 and a significance level below 0.01.

The second specific objective of this research was to empirically test the effect of distribution practices on organizational performance. Analysis of the descriptive statistics indicated that distribution practice has a mean score of 4.13, suggesting strong adoption and implementation of these practices within the organizations studied. Furthermore, correlation analysis unveiled a moderately positive correlation between distribution practices and organizational performance, with a correlation coefficient of 0.585 and a significance level below 0.01. Moreover, regression analysis underscored the significance of distribution practices as a predictor of organizational performance, with a beta coefficient of 0.245 and a significance level below 0.01.

The third specific objective of this research was to empirically test the effect of warehouse management practices on organizational performance. Descriptive statistics revealed that warehouse management practices received a mean score of 3.98, indicating moderate implementation within the studied organizations.

Additionally, correlation analysis highlighted a robust positive correlation between warehouse management practices and organizational performance, with a correlation coefficient of 0.806 and a significance level below 0.01.
Furthermore, regression analysis strongly emphasized the significance of warehouse management practices as a predictor of organizational performance, with a beta coefficient of 0.371 and a significance level below 0.01.

The fourth specific objective of this research was to empirically test the effect of transport practices on organizational performance. Analysis of descriptive statistics unveiled that transportation practices attained a mean score of 3.92, lowest among other practices and suggesting a moderate level of implementation across the studied organizations. Moreover, correlation analysis underscored a noteworthy positive correlation between transportation practices and organizational performance, with a correlation coefficient of 0.621 and a significance level below 0.01. Furthermore, regression analysis underscored the significance of transportation practices as a predictor of organizational performance, revealing a beta coefficient of 0.304 and a significance level below 0.01.

The final specific objective of this study aimed to empirically examine the impact of information sharing and coordination on organizational performance. Descriptive statistics analysis revealed that information sharing and coordination practices achieved one of the highest mean score of 4.13, indicating a robust level of implementation across the organizations under study. Additionally, correlation analysis indicated a moderate positive correlation between information sharing and coordination practices and organizational performance, with a correlation coefficient of 0.427 and a significance level below 0.01. Moreover, regression analysis highlighted the significance of information sharing and coordination practices as predictors of organizational performance, with a beta coefficient of 0.179 and a significance level below 0.01.

The performance metrics indicate strong results across the surveyed humanitarian organizations. Cost has the highest mean score of 4.11, reflecting effective cost management. Responsiveness follows closely with a mean of 4.08, showing quick reaction capabilities. Agility, at 4.06, indicates good adaptability, while reliability, with a mean of 4.05, suggests consistent and dependable operations.

Overall, all metrics have mean scores above 4.0, demonstrating robust performance in humanitarian supply chain management practices.

The regression analysis model summary demonstrates a strong positive correlation (R = 0.946) between supply chain management practices—procurement, distribution, warehouse, transport, and information sharing and coordination—and organizational performance. Approximately 89.4% of the variance in performance is explained by these practices (R Square = 0.894), with an adjusted R Square value of 0.886 ensuring model reliability. The low standard error of the estimate (0.19111) signifies minimal prediction error, although 11.6% of the performance variance remains unexplained by the included variables.

5.2 Conclusion

Building on previous theories and research in Supply Chain Management, specifically within the realm of humanitarian supply chain practices and their results, this study illustrates clear connections between Humanitarian Supply Chain Management Practices and Organizational Performance. This relationship helps in understanding about the effect of practice on performance. The findings provide full support for the idea that effective humanitarian supply chain management practices can improve Organizational Performance.

Among the studied organizations, both information sharing and coordination practice and distribution practice emerge as the most widely adopted, closely followed by Procurement practice that demonstrate a similar level of implementation, while warehouse management practice show moderate adoption. In contrast, transportation practices appear to be the least adopted among the surveyed organizations.

The correlation data reveals the relationships between various supply chain practices and organizational performance. Warehouse management demonstrates the strongest correlation with performance, indicating its significant influence. Procurement, transportation, and distribution practices also exhibit notable correlations with performance, showing slightly weaker than warehouse management. Information sharing and coordination, while positively correlated with performance, display a moderate association compared to other practices. These findings suggest that effective warehouse management plays a crucial role in enhancing organizational performance, followed closely by procurement, transportation, distribution and information sharing and coordination practices.

The multiple regression model revealed that the five practices of HSCM explain a significant portion (89.4%) of the variance in the organisations performance. However, this suggests that there are additional factors and constructs beyond the scope of this study that also influence performance (11.6%).

The multiple regression analysis, undertaken to understand the relationship between each supply chain management practices and organizational performance. While all the practices tested showed a positive relation with performance, it is revealed that Warehouse management has the strongest association with performance, followed by Procurement, Transportation and distribution. Conversely, Information and Coordination exhibit the least impact on organizational performance.

5.3 Recommendation

Based on the findings, several recommendations and future research directions are proposed. Given the strong correlation between warehouse management practices and organizational performance, humanitarian organizations should prioritize optimizing warehouse operations. Despite its significant impact on performance, warehouse management is the second least adopted practice among the selected organizations, Therefore the warehouse system of the selected organizations should be improved.

In order to improve the warehouse system, The selected organizations should strategically locate warehouses, implement robust security measures, conduct regular audits, and adopt best storage and handling practices to improve efficiency and reduce costs. This will enhance operational effectiveness and overall performance of the humanitarian organization .

The least implemented practice is transportation, which also significantly affects performance. The selected organizations should improve their transportation practice by using multi modal transportation, employing a diverse fleet of vehicles, utilizing external transport services, and evaluating the urgency, type of supplies, and destination distance when deciding on transportation methods. This comprehensive approach will enhance operational effectiveness and overall performance.

Based on the findings, reliability is the lowest performance metric of the selected organizations. Thus, the organizations should focus on improving their reliability by utilizing multiple channels, quickly adapting strategies to changing needs and maintaining flexibility in operations to address unforeseen challenges.

5.4 Area for further study

This research can be further explored by integrating beneficiaries' perspectives into research frameworks. Exploring the responses and experiences of beneficiaries can provide invaluable insights into the effectiveness and efficiency of humanitarian supply chain practices.

Furthermore, Building upon this study as a foundational framework, there is considerable potential for further expansion by encompassing additional Humanitarian organizations to gain deeper insights into the dynamics of humanitarian supply chain management.

Additionally, R-square value in the regression model accounts for approximately 89.4% of the variance in the dependent variable (performance), leaving 11.6% of the variance unexplained by the factors examined in this study. This suggests an opportunity for researchers to investigate additional factors that may influence performance but were not addressed in our analysis.

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ANNEX: I Questionnaire

To be fulfilled by respondents

Dear Participant,

Re: Invitation to Participate in Research Study on Humanitarian Supply Chain Management Practices

I am writing to invite you to participate in a research study titled "Effect of Humanitarian Supply Chain Management Practices on Humanitarian Performance: The Case of Selected International Humanitarian Organizations Operating in Ethiopia." The aim of this study is to investigate the impact of various supply chain management practices on the performance of humanitarian organizations operating in Ethiopia.

Your participation in this study is vital as your insights and experiences will greatly contribute to the advancement of knowledge in this field. Your responses will help us understand the effectiveness of different supply chain management practices and their implications for humanitarian performance.

Please rest assured that all information provided by you will be kept strictly confidential and anonymous. Your identity will not be disclosed in any reports or publications arising from this research. Additionally, all data will be stored securely and accessible only to authorized personnel involved in the research project.

Participation in this study is entirely voluntary, and you have the right to withdraw at any time without any consequences.
If you agree to participate, please complete the enclosed questionnaire

The questionnaire consists of two sections.
Section 1 is about General information.
Section 2 contains humanitarian supply chain practices of selected UN organizations

please feel free to contact me at +251913989558 or by email at easss822@gmail.com.

Thank you very much for cooperation.
Sincerely,

Elias Alemu

Self-administered Questionnaire

Section 1 Respondents' general information

The following questions are about the respondent's information in the organization. Kindly indicate the appropriate characteristics of the respondent's information using a tick mark (√) on the check box. Or provide an answer in the bank space.

1.1. SEX -

Male ☐ Female ☐

1.2. AGE -

18-25 years ☐ 26-35 years ☐ 36-45 years ☐ above 45 years ☐

1.3. Education Status

Below diploma ☐ Diploma ☐ Degree ☐ Masters and above ☐

1.4 **Current Organization**

AAH ☐ Imagine1 Day ☐ COOPI ☐

1.5. Current Position in the organization

Procurement staff ☐ Transportation staff ☐

Warehouse management staff ☐ Admin Staff ☐ Finance ☐

staff

1.6 Total Number of Experience

0-5 years ☐ 6-15 years ☐ above 15 years ☐

Part II Please rate your level of agreement
Level of agreement

Please answer the below statements on your level of agreement of the supply chain practice variables considering your knowledge and experience in the field?

1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree

S. NO	Procurement	Scale				
		1	2	3	4	5
1	Our Organization practices pre-positioning supplies in advance of disasters					
2	We evaluate suppliers based on past performance, ethical standards, and delivery efficiency On our supplier selection process.					
3	We integrate information technology in our procurement processes					
4	We practice Ethical procurement behavior, including transparency, conflict avoidance, trust and collaboration within our supply chain activities.					
5	We clearly define and communicate the specifications needed for products we use in rapid relief.					
6	We Implement electronic procurement systems that facilitates real-time communication and expedites transaction processing.					
7	We Strategically align our procurement plans with our organizational objectives.					
S. NO	Distribution Management Practice	Scale				
		1	2	3	4	5
1	We practice structuring our distribution team to enable on-the-spot situational decision-making.					

2	We always Strategically locate distribution centers and points in established community centers and meeting places.					
3	We practice prioritizing the efficiency of last-mile distribution to ensure that goods and assistance reach their final destinations promptly.					
4	We practice Flexible distribution strategies that enable quick adaptation to changing conditions and need.					
5	We practice minimizing the number of distribution points to reduce the distance beneficiaries need to travel.					
6	We practice fair distribution of commodities to beneficiaries according to specified rations and selection criteria.					
S. NO	Warehouse Management Practice	Scale				
		1	2	3	4	5
1	We practice strategically locating our warehouses to optimize accessibility to affected areas.					
2	We Implement of robust security measures that ensures the safety and integrity of stored goods.					
3	We Practice climate control measures in warehouses prevent spoilage and preserve the quality of sensitive items.:					
4	We practice placing our warehouses to reduce transportation time and enhance overall supply chain efficiency.					
5	We practice regular security audits and improvements to maintain the trust of stakeholders and prevent disruptions to the supply chain.					
S. NO	Transport Practice	Scale				
		1	2	3	4	5
1	We practice the usage of multi modal transportation, including unconventional modes such as governmental resources during emergencies.					

2	We practice accessing a diverse fleet of vehicles to enhance flexibility and responsiveness.					
3	We practice collaborating with external transport service providers to increase our capacity during emergencies.					
4	We practice thorough planning to ensure that transportation of supplies is safe and timely.					
5	We practice evaluating the urgency, type of supplies, and destination distance when deciding transportation methods.:					
S. NO	Information Sharing and Coordination Practice	Scale				
		1	2	3	4	5
1	We Implement secure communication channels, including encryption technologies, that ensures the integrity and confidentiality of shared information.					
2	We Integrate advanced technologies, such as real-time data management systems and mobile applications.					
3	We practice tracking capacities, goods, and delivery statuses through our information systems.					
4	We practice coordination with stakeholders, including NGOs and government agencies, to respond quickly to changes and emergencies.					
5	We practice engaging with the community to understand their unique needs and incorporate their insights into our decision-making processes.					

S. NO	Responsivness	Scale				
		1	2	3	4	5
1	Our organization promptly adresses and responds to beneficiary needs efficiently.					
2	Our organization maintains a high level of readiness to respond to emergencies.					
3	Our organizations response is justified as per plan (meeting a set time frame)					

S. NO	Realablity	Scale				
		1	2	3	4	5
1	Our organization ensures that aid deliveries are accurate and complete.					
2	Our organization consistently meets its commitments to beneficiaries and donors.					
3	Our organisation addresses all complaints reported during the execution of the supply chain operation.					

S. NO	Agility	Scale				
		1	2	3	4	5
1	Our organization quickly adapts strategies to changing needs on the ground.					
2	Our organization maintains flexibility in operations to address unforeseen challenges.					
3	Our organization utilizes multiple channels and methods to deliver aid effectively.					

S. NO	Cost	Scale				
		1	2	3	4	5
1	Our organization's financial resources are used efficiently to achieve our mission.					
2	Our organization achieves a high return on investment(achievements) for humanitarian projects.					
3	Our organization minimizes overhead and administrative costs to maximize aid delivery.					