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MEDICAL SUPPLY MANAGEMENT AND HEALTHCARE

PERFORMANCE OF SELECTED HOSPITALS IN THE UPPER-WEST

REGION OF GHANA

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SUPPLY CHAIN RISK MANAGEMENT AND PERFORMANCE OF

SELECTED HOSPITALS IN THE UPPER-WEST REGION OF GHANA

BY

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Management

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ……………………………   Date: ……………….

Name: Abudu Balenmilen Bahua

Supervisors' Declaration

We hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidelines on thesis laid down by the University of Cape Coast.

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ABSTRACT

Health is an outcome indicator of economic growth and development of a country. Thus, adopting inappropriate supply chain risk management strategies in managing healthcare supply chain could have serious repercussions on hospital's performance which could lead to loss of many lives. The study, therefore, examined the effect of supply chain risk management strategies on the performance of hospitals in Upper West Region of Ghana. More importantly, the study examined how supplier management strategy, inventory management strategy and last mass distribution strategy affect healthcare supply chain performance and how it could impact on patients' satisfaction of the hospitals under studied. The examination was supported by network hypothesis and asset-based view hypothesis. The examination receives the positivism reasoning, quantitative methodology and logical plan. Utilizing the enumeration and basic arbitrary examining strategies, organized surveys were regulated to 96-unit heads of emergency clinics and 132 patients in the Upper West Region. Out of this, a solid informational index of 96 and 102 respondents was prepared utilizing IBM SPSS Statistics form 25 and Smart PLS adaptation 3 programming. Utilizing the Partial Least Square – Structural Equation Modelling, the investigation found that store network hazard the board techniques including provider the executives, stock administration and last mass circulation the board have critical effect on medical care inventory network execution which prompts patients' fulfilment. The study therefore recommends that hospitals in the Upper West Region should adopt all the above management strategies in order to improve hospitals' performances.

KEY WORDS

Supply Chain Risk Management

Supply Chain Risk

Hospital Performance

Inventory management

Last Mass distribution Management.

Supply Management

Health Care Delivery

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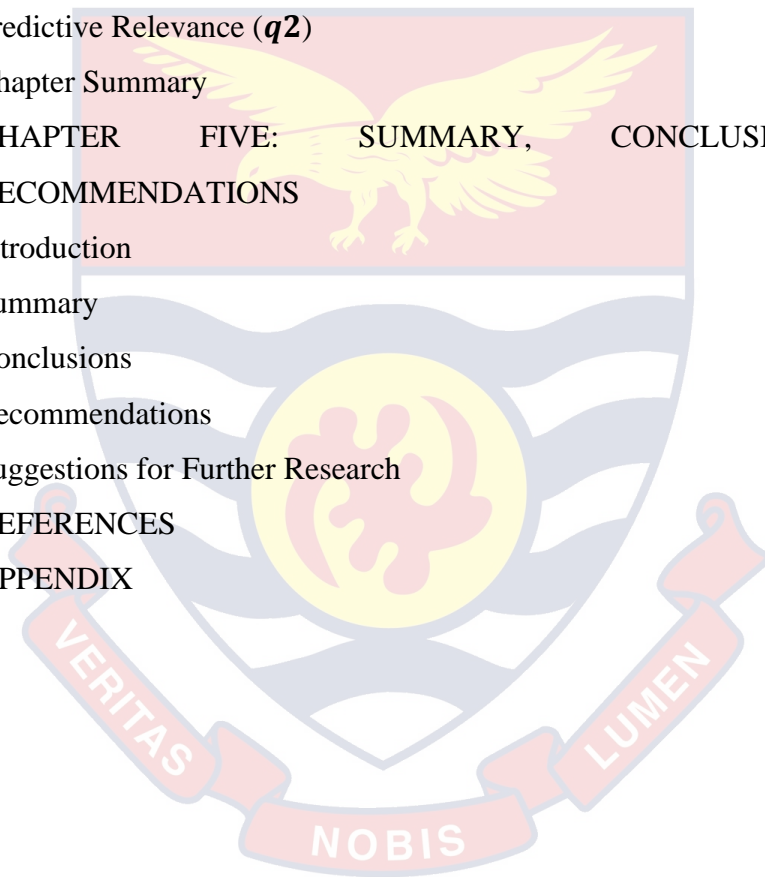
DEDICATION

To my family

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ACRONYMS

CMS	Central Medical Store
CSM	Cerebral spinal Meningitis
GHIs	Global health initiatives
GHS	Ghana Health Service
HC	Health Care
HCD	Healthcare Delivery
HCSC	Healthcare Supply Chain
HP	Hospital performance
HSCP	Hospital Supply Chain Performance
IMS	Inventory Management Strategy
LMDM	Last Mass Distribution Management
NT	Network Theory
RBV	Resource Based View
RMS	Regional Medical Store
SCM	Supply Chain Management
SCMP	Supply Chain Management Performance
SCR	Supply Chain Risk
SCRM	Supply Chain Risk Management
SCRMS	Supply Risk Management Strategies
SDP	Service Delivery point
SMS	Supplier Management Strategy
UWR	Upper West Region

CHAPTER ONE

INTRODUCTION

Health is indispensable for development; it is the drive for human and socio-economic progress of many countries. Human capital is increasingly recognised by its effects on economic growth and redistribution to the poor as a potentially effective solution to poverty reduction and central to this is health. Health is an outcome indicator of economic growth and development of a country, therefore improving access to quality health care and nutrition services, serves as the means towards achieving all other individual and societal goals. A large volume of high-quality research has shown since ancient times that, health is an essential part of ensuring sustainability and equal development.

According to Weil (2014); and Bloom and Canning (2018), increasing individual life expectancy, employee participation and their productivity in labour market are all directly correlated with health. Network theory suggests that hospitals should adopt relevant medical supply management strategies including supplier management, inventory management and last mass distribution, risk sharing/knowledge sharing to address supply chain risk in hospitals.

Background to the Study

Over the last decade considerable funds were invested in global health initiatives in development countries to address global health challenges like TB, HIV/AIDS and malaria (Storeng, Prince & Mishra, 2019). Promoting healthcare delivery is essential to human welfare and sustainable economic and social development across all nations (World Health Organization, 2010).

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Therefore, improving access to quality healthcare delivery serves as a means towards achieving all other individual and societal goals.

It further explains why the Sustainable Development Goal three that seeks to ensure good health and promote well-being for all at all ages attracts global attention. It means that all people and communities across the globe should have access to high-quality healthcare services they need without any hardship to individuals, families and communities, so as to enable a transition to more productive and equitable societies and economies. The increased competitiveness, government regulations, increased costs, demand for higher quality of service and global pandemics put healthcare providers under enormous pressure (Acharyulu & Shekbar, 2012). Health institutes should therefore strive to add value throughout the entire health logistics supply chain. The supply chain generally refers to the necessary resources to supply a consumer with goods or services.

The management of the supply chain is typically a very complex, fragmented process in healthcare (Moons, Waeyenbergh & Pintelon, 2018). Donato, Roth and Parry (2017) stated that growing demand for healthcare and logistics services requires stronger regulatory monitoring for the quality of this increased volume of products, and places extra pressures on public and private supply chains. Lenin (2014) argues that the main challenge in the healthcare delivery system is the supply chain risk management in the achievement of improved performance and service. The sector appears to be challenged in terms of rising demand for drugs and equipment costs, growing demand for quality treatment, sophisticated equipment, and changing disease trends, resulting in higher healthcare costs.

Implementing supply chain risk management should integrate a framework that will enable the management to assess and prioritise the risks for existing services as well as service planning (Mentzer, 2008). The global pattern of challenges faced by healthcare providers is closely a share and common challenge. In the case of customer dissatisfaction, an increase in health services costs, competition and a reduction in service reimbursement issues, supply chain management is an essential and insparable element of supply chain management in the UK, according to a studied carried out by Breen (2008). The results of the study obtained show a direct link between the supply chain risk management and organization performance, carried out by Munyuko (2005) in Jomo Kenyatta University of Agriculture and Technology, Nairobi.

Another study carried out by Wieland and Wallenburg (2012) acknowledged that supply chain risk management offers effective tools and strategies to reducing the challenges of uncertainty and complexity in the health sector when managed effectively. In addition, supply chain risk management play**s** an important role in healthcare delivery and its failure can result in sabotage in the sector (Kumar, Ozdama & Zhang 2008; Kayoma & Khomba, 2013). In Burns (2008) the four main components of the healthcare supply chain risk management are: producers, buyers, suppliers, and payers, which pose a hospital supply chain risk and that always affect patient satisfaction.

Burns says that it consists of the internal (patient) and external chains (hospital pharmaceuticals) (producers, purchasers, distributors and payers). The point of view of supply chain risk management is to manage all upstream

and downstream activities, including the identification of the customer request, resolving of functional split problems between individual parties, storage, distribution, redistribution, procurement (Wang, 2018). The Supply Chain Management (SCM) integrates key end-user processes through original providers which offer products, services and value-adding information to customers and other stakeholders

The production network the board of medical services is special and unmistakable from that of customary production network the executives since the quantity of indicative sorts and techniques in various amounts is unique (Wang, 2018). This implies that in the medical care area instead of in assembling, multi intricacy coordinations is provided. One of a kind and unique in relation to the average mechanical stock chains are emergency clinic supply chains in numerous regards. It is an unpredictable framework that needs the progression of labor and products to address patients' issues (Schneller and Smeltzer, 2006).

Adu-Poku, Asamoah and Abor (2011) maintained that though, in Ghana, billions of Ghanaian cedi are used in the healthcare sector to ensure that quality healthcare services are rendered to the populace by providing medical logistics, the quality of healthcare services in hospitals have still come under intense scrutiny for years. To this effect, Ofosu-Kwarteng (2012) pointed out that there is unsatisfactory service delivery by public hospitals in areas of care and treatment.

This implies that the quality of healthcare services is compromised when juxtaposed with public expected performance in Ghana. A further study carried out in Ashanti, Ghana in the Ashanti region by Adzinah, Awuah,

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Aikins and Duah (2014) found that developing countries are spending considerable sums on health commodities and yet estimates at 60% to 80% of their population.

Theoretically the Network theory suggests that mutual interaction among entities in the supply chain especially in the health system is paramount for healthcare delivery while the Resource Based View (RBV) theory also corroborate sustainable effective healthcare delivery through the judicious use of organizational resources that are inimitable, rare, valuable and organized to achieve competitive advantage. The network theory describes the relationships between companies, suppliers, clients or purchasers. The asset based view proposes that assets fluctuate among endeavors and that asset contrasts persevere after some time that empower organizations to keep up upper hands (Barney, 1991).

The network theory is based on the mutual interactions among organizations. Network theory suggests that hospitals could be exposed to supply chain risk arising from long lead time, delay in reimbursement by NHIS, centralised suppliers, shortage of drugs and disruption (Chiwaridzo, 2014). These hospitals can only overcome supply chain risk and improve performance by adopting to appropriate supply chain risk management strategies (Mustaffa & Potter, 2009). The RBV hypothesis says that assets shift across organizations, and assets that endure throughout the time permit organizations to keep up upper hand (Barney, 1991), and that an organization's resources need to be important, uniquely, inimitable and not replaceable to create a competitive advantage. These supply chain supply chain resources

include SCM capacity, SCMP and supply chain (Blome et al, 2014) integration capabilities and supply chain collaboration.

These strategies allow hospitals to monitor inventory levels, predict future requirements, and plan (Leendertse, van den Bemt, & Egberts, 2006). In addition, De-Vries and Huijsman (2011) studied the partnership between healthcare providers and examined the effects on healthcare providers' relations. They thus established that undefined demand and operating costs could hinder the fusion of suppliers, and their net profit cannot vary even if they consolidate. Alexander et al., (2017), though, pointed out that integration in the health sector of the supply chain could reduce costs and improve healthcare quality. In the performance of their core and auxiliary mandates, healthcare service providers use a myriad of items including syringes, prescription medicine, guides, plumes, papers & computers, hearing gear, nose-masked hands, apron, boots and hand gloves.

The access to these resources is highly dependent on resilient supply chain system (Kwon, Kim & Martin, 2016) which invariably impacts on operational efficiencies, customer satisfaction and quality of care in both private and public hospitals in Ghana (Nartey, Aboagye-Otchere & Simpson, 2020). Many studies have been performed on the relationship between supply chain risk management and hospital supply networks; many researchers have shown a clear link between supply chain risk management strategies and their impact on hospital supply chain performance and patient satisfaction.

However, there is no study that assessed medical supply management on hospital supply chain performance and patient satisfaction. While the literature indicates that, this goal can only be achieved if hospitals adopt

relevant medical supply management strategies, the extent to which they influence hospitals performance and patient satisfaction in the Upper West Region remains scanty. The study, therefore, examines medical supply management and healthcare performance of hospitals in Upper West Region.

Statement of the Problem

Health services in the public sector has emerged among management, practitioners and researchers in Ghana in recent years as one of the most topical problems. This trend is largely due to the role of healthcare providers in the industry. Health service providers use a myriad of items, such as prescriptions drugs, syringes, pens, gloves, papers, and computers, heard gears, nose masks, apron, boots, and hand gloves in the discharge of their core and auxiliary mandates. The access to these resources is highly dependent on resilient supply chain system (Kwon, Kim & Martin, 2016) which invariably impacts on operational efficiencies, customer satisfaction and quality of care in both private and public hospitals in Ghana (Nartey, Aboagye-Otchere & Simpson, 2020).

The interconnection of the functioning of the entities in the supply chain of health resources posed array of risks to the healthcare delivery of the health sector since a failure of one unit or entity could collapse the entire healthcare delivery system and for that matter endangering the lives of health practitioners and causing avoidable deaths in the health facilities. Munyuku (2015) argued that risk in organizations is integral and every organization has to manage it according to its size and nature of operation. Therefore, supply chain risk is integral to health care system and necessary for hospital performance across the globe.

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The supply chain of hospital supplies in Ghana seems to be engulfed with breaches perhaps partly because of the practice of centralized storage systems. Adu-Poku, Asamoah and Abor (2011) for instance observed that there is a poor collation of patients' needs during procurement planning, delay in paying suppliers, poor delivery time by suppliers and prolonged procurement systems, while, Oware, Samanhyia and Ampong (2016) noted that hospital suppliers are not adequately involved in their procurement processes which disrupts the supply chain of hospitals supplies and thus creates leeway for drug pilfering, shortages and drug expiration.

The upper West region has been baffling with health pandemics such as CSM, Cholera, Malaria and Tuberculosis for far too long in history between 2010 to 2013 CSM has caused 103 deaths in the Upper West Region, 25 maternal deaths in 2016, and 43 CSM deaths recorded in 2020, (UWR GHS, 2016, 2020 annual report). Nonetheless, the required emergency attention attached to these perennial pandemics now and in the past has been inappropriate and just too abysmal. There are always inadequate hospital supplies, delay in delivery or pilferage in the chain. This has led health practitioners to remained helpless while productive citizens perish and at large low hospital performance.

Identifying the difficulties of providing the hospitals in the Upper West Region with the needed supplies requires an assessment of its effect on hospital performance as postulated by the network theory. This is because existing studies in literature as can be found in WHO (2009), Manso et al. (2013) suggests that supply chain risk management remains a crucial determinant for the quality performance of healthcare delivery in Ghana. Therefore, this study

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is essential in assessing medical supply management on healthcare performance and its effects on patient satisfaction in the region.

Purpose of the Study

The point of the investigation was to analyze the medical services impact of some chose emergency clinics in the Upper West locale of Ghana from the impacts of clinical stockpile the executives.

Research Objectives

The accompanying goals were created to accomplish the motivation behind the investigation. The investigation looked for specifically:

1. assess the effect of supplier management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

2. analyse the effect of inventory management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

3. assess the effect of last mass distribution management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

4. examine the influence of hospital supply chain performance on patient satisfaction in the Upper West Region.

Research Hypotheses

The study tested the following research hypotheses:

H1a: Supplier management strategy significantly improves healthcare supply chain performance of selected hospitals in the Upper West Region

H1b: Supplier management strategy significantly improves patient satisfaction of selected hospitals in the Upper West Region.

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H2a: Inventory management strategy significantly improves healthcare supply chain performance of selected hospitals in the Upper West Region

H2b: Inventory management strategy significantly improves hospital supply chain performance and patient satisfaction of selected hospitals in the Upper

H3a: Last mass distribution management strategy significantly improves healthcare supply chain performance of selected hospitals in the Upper West Region

H3b: Last mass distribution management strategy significantly improves patient satisfaction of selected hospitals in the Upper West Region

H4:   Effective healthcare supply chain significantly improves patient satisfaction of selected hospitals in the Upper West Region

Significance of the Study

In order to address the quality of the service deficiencies and a roadmap for the improvement of quality in health service, the results of this study will be important for public and private hospitable management and management in the High West region as well as in Ghana. Also, the study will provide a framework for researchers and scholars to further examine medical supply management strategies in the health sector to the degree that it influences health service quality. It would also provide health practitioners, procurement officers and administrators with useful insights. The study's outcome would contribute to the current literature in theoretical implications.

The results of this study will provide Government and NGOs with useful information when developing and implementing strategies for efficient

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public health medical supply management. The final result would put researchers at risk of supply chain management and hospital performance to an adequate methodology when dealing with issues. The study's outcome would also add knowledge in medical supply management strategies to help address some existing gaps.

Delimitation

The study will focus on managing and delivering health care risks in the supply chain in the Upper West region of Ghana. The study covers selected public hospitals in Ghana's Upper West Region. The procurement/store keeper's officers, Medical Doctors, Pharmacist, head midwifery unit, accountants, health information officers, head of OPD unit, hospital administrators and Female ward in-patients will be the main participants for the study because the study wants to ascertain the challenges they encounter when providing health care services to the people and the patients will also ascertain whether hospital staff provides them with needed care in their various hospitals.

Limitations

The study was confined to the target population of hospitals in the Upper West Region comprising the Regional hospital and the eleven District hospitals in the Region. As such that will limit its findings, conclusions and recommendations mainly to these groups of hospitals in the UW/R. The study will also be limited to key respondents' views and opinions. Any respondent could mislead the results of such false information. The study relied on close-ended and rating scale type question items which limited the amount of

information to be obtained from respondents especially in relation to the construct of the study. This is because the interviewees answered only the questionnaire items without further suggestions. Finally, no interviewees, incomplete questions and inaccessibility of some interviewees could be affected by any findings.

Definitions of Terms

Supply Chain Risk

The idea of production network hazard will be operationally characterized as the genuine interferences or interruptions inside the stockpile techniques and related activities that an association experience inside the production network organization of the association. The vulnerability that set all the while or stream of wellbeing coordination.

Supply Chain risk management

Current organizations work in a perplexing climate which is evolving quickly (Haleem et al., 2018; Wiengarten et al., 2016), and relying progressively upon complex inventory network accomplice networks convey labor and products at the opportune time and in the right amount Place them under persevering tension on cost and quality. Dealing with the production network hazards (SCRM), alluded to as firms' exercises to distinguish and oversee chances related with the inventory network through a planned methodology (Jüttner, 2003; Kauppi et al., 2016).

Once more, Fan and Stevenson (2018) have distinguished SCRM as an inventory network hazard location, appraisal, taking care of and following worked with by the interior organization of devices, methodology and techniques and outer participation and the coordinated effort of inventory

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network partners in a bid to limit weakness and keep up steadiness and benefit.

SCRM rehearses assume an essential part in the administration and reaction to

the difficulties in the dynamic and questionable business climate today. (El

Hiri, En-Nadi and Chafi, 2018; Manuj, Esper and Stank, 2014).

Supply Chain Management

Inventory network Management is the administration of the progressions of

coordinations and administrations beginning from the cause of items and

finishing at utilization of items that advance the nature of tasks of the

organization (Queiroz, Telles and Bonilla, 2019). Fernando (2020) likewise

characterized Supply Chain Management as the administration of labor and

products travel and envelops all cycles which change crude materials into

completed items. The Author has additionally brought up that SCM needs a

functioning smoothing out of an association's inventory side activities to

enhance customer fulfilment and to accomplish an economical market

advantage.

Healthcare

Providing medical services, including all services which are required

to protect, promote and restore the health of the people in an organization.

Healthcare delivery

This implies how the system of healthcare are organized, managed and

provided to the people

Hospital performance

Refer to the measurement of hospital's performance against prescribed

standards

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Organization of the Study

This examination was coordinated into five parts. Section one was dedicated to the foundation to the investigation, articulation of the issue, motivation behind the examination, research targets that manage the examination, research questions, meaning of the examination, delimitation of study, impediment of study, meaning of terms and general association of the examination. Section two introduced on the survey of related writing of the investigation. It explicitly centred around hypothetical survey, experimental audit and reasonable system.

Part Three managed the techniques which utilized exploration plan, populace, testing methodology, the investigation territory, information assortment instruments, information assortment strategies, information preparing and examination. Part Four covered the outcomes and conversation segment lastly section Five talked about the outline, ends and proposals of the examination and ideas for additional exploration were introduced in this part.

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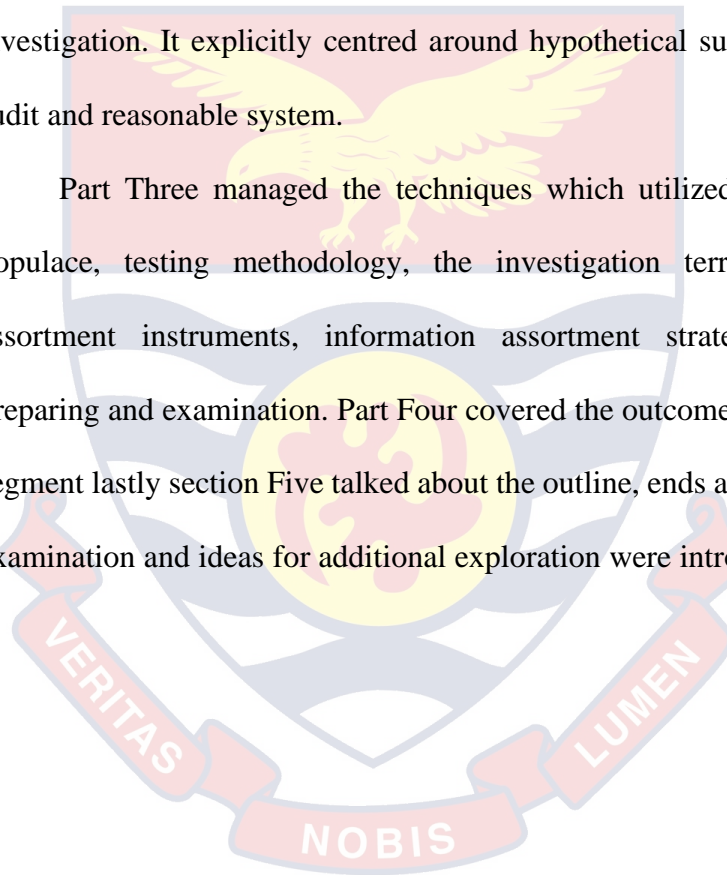
CHAPTER TWO

LITERATURE REVIEW

Introduction

The aim of the study was to study the effect of the management of the medical supply chain and the health of some selected hospitals in the Upper West. The chapter presents a thorough literary analysis regarding the research goals of the study. The chapter discussed theoretical evaluation, empirical review and the conceptual framework of the study in particular.

Theoretical Review

Due to their relevance to the research objectives of the research study, the study was based on network theory and resource-based vision. This section discussed network and resource-based theory and explained the research goals of the study.

Network Theory

The network theory was propounded by Jocob Moreno in 1930 to study interpersonal relationships (Andridge & Little, 2010). The theory was later formalised to become pervasive and behavioural and social sciences (Bellamy & Basole, 2013). The network theory has been used extensively in literature, to establish structural relationships, between people, groups, teams and even organisations (Nagurney, Cruz, Dong & Zhang, 2005; Bellamy & Basole, 2013). The network theory basically describes the cooperation of organisations with other actors between and among suppliers and customers within their supply chains. The theory posits that, partners can build strong relationship through effective communication, long-term mutual commitment, dynamism

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and development of relations and exchange of valuable resources own by them (Scott, 2011).

The relevance of the theory to the study is that, hospitals performance does not only depend on how efficient their resources are, but also how they effectively cooperate with other supply chain partners in their supply chain (Cheng et al., 2012). Establishing mutual relationships with supply partners, for instance hospitals suppliers can share responsibilities and risk, access valuable resources, build trust and commitment to improve hospitals performance levels. Focal actors in the hospitals supply chain including manufacturers, wholesalers, retailers and hospitals pharmacies, hospitals can establish strong mutual relationship to effectively manage supply chain risk.

Thus, to properly manage supply chain risk these hospitals in the Upper West Region can adopt the following supply chain risk management strategies; strategic supplier relationship management and supplier collaboration. These supply chain management strategies emphasis building strong relationships between hospitals and suppliers hence highlighting the relevance of network theory to the study.

Resource Based-View Theory

The RBV hypothesis has been grown principally in the last part of the 1980s and 1990s and in this manner refreshed with expansions and is one of the large financial speculations that centers around accomplishing an upper hand by means of inside assets (Bohnenekamp, 2013). The asset based view got one of the extraordinary monetary hypotheses and took care that inside assets acquired the upper hand. The RBV looks at the association between an association's interior capacities and execution, as per Dierickx and Cool (1989;

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Barney (1991); and Petraf (1993). The asset based view recommends that assets fluctuate among ventures and that asset contrasts endure over the long run that empower organizations to keep up upper hands (Barney, 1991). Under RBV, various acts of innovation and association can be viewed as a methods for economical upper hand.

The business assets should be significant, novel, incomparable and non-replaceable to make an upper hand. The RGV likewise trusted in the maintenance and reevaluating of less significant items inside its homegrown exchanges that stock administration and last mass appropriation the executives add to the upper hand (Bohnenekamp, 2013). All in all, reevaluating choices or the executives of provisions depend on zeroing in on center abilities and trading integral capabilities to outside accomplices (Halldorsson et. al., 2007). This examination is thusly fundamental and substantial in the RBV hypothesis.

These asset supply chains incorporate the limit of the SCM, for example The utilization of last mass appropriation, data innovation, center around center ability. reconciliation capacities of SCMP and store network (Blome et. al, 2014). Like RBV idea of force, production network the board professionals see the capacity or capability of an organizations to shape vital provider association (SSP), make participation in the inventory network and the capacity to share information, vision needs utilizing data innovation, implements inventory network approaches, oversee hazard and select worth providers for upper hand. Also, production network joint effort could be viewed as an essential asset or capacity that is novel, significant and hard to imitate, in this manner giving an upper hand (Fawcett et al., 2011; Hartmann and De Grahl, 2011).

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The management of all human resources in the hospitals in the UWR will be a valuable to improving healthcare delivery and performance, hence focus in building their core competence and risk sharing/knowledge transfer is key. The theories underscored the fact that in supply chain relating to health logistics in the Upper West Region, the major players are interconnected and each within the chain play a very crucial role towards the provision of quality healthcare in the region. Each point is valuable from the manufacturers to the last users, thus the patients in the hospitals.

Viable danger the board in supply chains doesn't need seeing just the actual dangers yet additionally the capacities and assets that might be accessible to use during the cycle. This examination embraced the asset based view, since it illuminates the contrasts between the danger the board capacities of the inventory network entertainers and can hence assist with distinguishing the fundamental components to be centered around in building up a compelling clinical administration technique.

Conceptual Review

Performance Measurement in Healthcare Delivery

All organizational activities involve risks to be managed. In addition to the risk inherent in the provision of health care, community expectations of safety and the efficient provision of services are particularly true for the healthcare organizations (Mishra, 2019; Vilko, 2012). To this end, in the healthcare sector particularly the patients expect a lot of quality service delivery any time they visit the hospital. It is therefore imperative upon the management

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of hospitals in the Upper West Region to deliver services assiduously to satisfy all patients who visit these hospitals.

According to Yap and Tan (2012) performance measurement in an organization refers to how well or satisfactorily an organization meets its financial goals, customers and market criteria. Therefore, from the medical Supply Chain Management perspective of hospitals, performance measurement may include patients' satisfaction, organization-wide coordination and supply chain integration.

Pinna, Carrus and Marras (2015); Yap and Tan (2012) submitted that the measures of organizational performance usually include financial performance, customer satisfaction, learning and growth product sales performance, and shareholder returns. This means that the yearly performance reviews of the major hospitals in the Upper West Region can serve as an index to measure the performance of the hospitals against the supply of logistics and healthcare delivery.

Supply Chain in the Healthcare Delivery System in Ghana

The Ministry of Health in Ghana has developed a Master Plan on the supply chain, which essentially aims to make health supplies management in the country more efficient. The plan aimed to increase supply availability by enhancing operational demand forecasting, timely acquisition, reducing administrative time and increased management efficiency (Ministry of Health, 2012). Therefore, the prime aim of the delivery system of logistics in the Ghana Health Service is to improve the general healthcare in the country.

The vision statement of the Logistics, Clearing and Warehousing Department of Ghana Health Service reads: 1) "Logistics: Our mission is to

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offer, our clients, a competitive advantage through superior transportation of logistics services. Through timely communications and quality information, we will meet and exceed our client's expectations of service. Also, through our commitment to provide excellent service, value added service, continued innovation in management, we will accomplish our mission: 2) Warehousing: To ensure that regular availability and uninterrupted supply of health commodities are delivered to health institutions at affordable prices. Using best practices in storage and distribution of quality drugs and personal protective equipment, we can respond to the total commodity requirement and as a centre of excellence, and safe efficacious health commodities" (Ministry of Health, 2012, p.2).

In the field of health logistics, the supply chain partners are pharmaceutical manufacturers that supply raw materials, purchasing agents such as health ministries, health agencies, UN agencies and others. Transporters, central medical stores, the local medical stores and the service delivery point are all distributors (Manso, Annan & Anane, 2013). The supplies in the hospitals in Ghana and for that matter the Upper West Region depend on this kind of supply system since most of the hospitals are public. The supply system comprises of the manufacturers, suppliers (wholesalers, distributors, and retailers), Regional Medical Stores (RMS), the Central Medical Stores (CMS), Service Delivery Points (SDP), and the transportation networks (Labi et al., 2018; Manso, Annan & Anane, 2013).

This means that health logistics such as drugs and Personal Protective Equipment (PPE) are provided to the hospitals in the Upper West Region through this approach chain. When the Ministry of Health procures logistics,

the Central Medical Store is responsible for the receipt, storage and distribution of all the supplies across all major Regional Medical Stores. The Upper West Regional Medical Store then also supply the lower levels of the tier. Hospitals across the region, depending on their geographic location, are expected to be supplied from the appropriate regional medical stores.

The hospitals in the Upper West Region include Wa Regional Hospitals, Jirapa, Daffiama Bussie Issa (DBI), Lawra, Lambussie, Nandom, Nadowli –Kaleo, Sissala West, Sissala East, Wa Municipal Wa East, and Wa West. All these major hospitals take their healthcare logistics from the Wa Regional Medical Store. A cold warehouse network in all regions and cooling installations manages vaccines slightly differently. Most of these are located in a regional medical centre in the same place.

Each Regional Medical Store is administered by the different Regional Health Administration (RHA), and it gives a stock organization to prosperity workplaces around there (Labi et al., 2018). In unprecedented cases, the Teaching Hospitals and The Regional Hospitals, resulting to getting underwriting from Ministry of Health, secure their stock directly from the suppliers. They also get their arrangements from the Central Medical Store. A four-level framework comprised of local, region, sub-area and local area establishes the wellbeing framework conveyance while the administration of wellbeing administrations and wellbeing supplies as expressed forthright is worked on a three-level framework including the Central Medical Store, the Regional Medical Store and the Service Delivery Point.

The Central Medical Store is responsible for procuring drugs and vaccines that are primarily financed by external financiers. Occasionally, and

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this is an exceptional case, the Teaching Hospitals and the Regional Hospitals procure directly from suppliers, but approval must be sought from the Ministry of Health (Mathew, John & Kumar, 2013). Thus, whilst the logistics and supply management system are centralized, the healthcare delivery system is decentralized. Together with suppliers of drugs and other medical logistics at both local and international levels, pharmaceutical manufacturers, wholesalers, distributors, and retailers, transportation networks and other distribution networks constitute the supply chain network in the health sector.

Supply Chain Route in the Upper West Region

In 2017, Shahbaz, Rasi, Ahmad and Rehman carried out a study in Malaysia and found that hospitals and clinics monitor and manage their own inventory and order the wholesaler on request. The decision on which products to order at every point and how much to order depends on the know-how and expertise of the hospital staff. Hospitals make an order using the Purchase Order (PO) system online directly. Similarly, in the Upper West Region, the hospitals procure or obtain logistics through a bureaucratic procedure not through online Purchase Order as in Malaysia. This is done to ensure proper linkage of hospitals department, operations, and revenue cycle (Arora & Gigras, 2018).

The Upper West Region has a total of eleven (11) administrative area, containing Jirapa, Daffiama Bussie Issa (DBI), Lawra, Lambussie, Nandom, Nadowli – Kaleo, Sissala West, Sissala East, Wa Municipal, Wa East, and Wa West. The region prosperity system in the area is formally directed by the eleven Budget Management Centers with the help of District Health Management Teams (DHMT"s). The DHMTs are controlled by the Regional

Health Management Team (RHMT). Each locale is additionally isolated into wellbeing sub-regions for powerful wellbeing administrations conveyance reason. The Supply Chain Management path is both forward directional and backward directional.

The flow of healthcare logistics to the hospitals is from top level to the down-level points whereas the request for logistics in the healthcare delivery system is down level- up approach since the request is from the last usage point to the manufacturers. As suggested by the network theory to establish structural relationships, between peoples, groups, teams and even organisations (Nagurney, Cruz, Dong & Zhang, 2005; Bellamy & Basole, 2013), therefore, actors within the healthcare supply chain should establish strong mutual relationship between and among each other's to get regular flow of logistics and drugs to improve healthcare supply chain invariably will help patients lives.

The flow of supply chain of logistics in the healthcare delivery system in Ghana is illustrated diagrammatically below:

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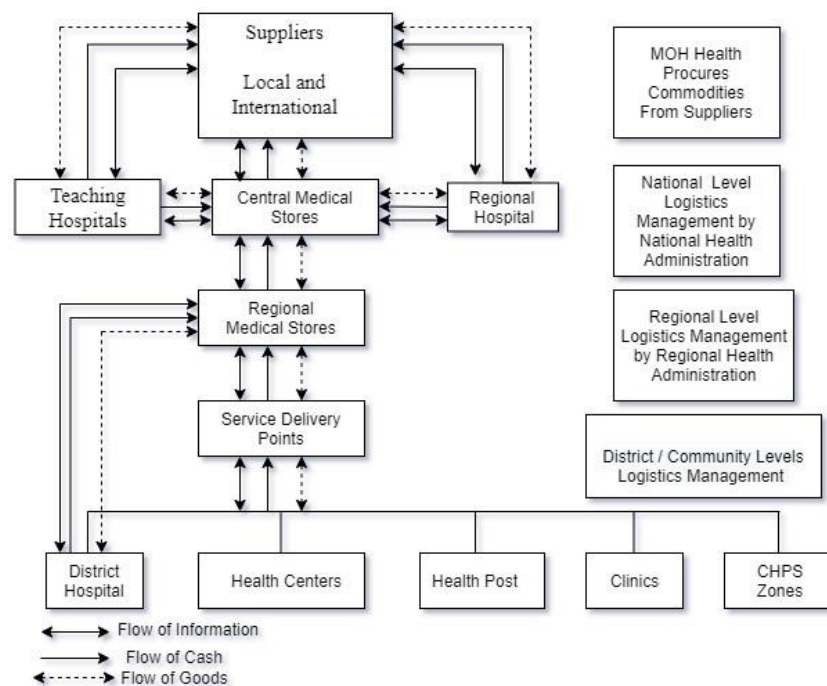
Figure 1: SC of Healthcare Delivery system
Source: GHS (2016)

Figure 1 above indicates how goods move from suppliers to the various health centres as well as the flow of information and cash within the healthcare delivery sector in Ghana. From figure 1, the double arrows indicate the flow of information in the healthcare delivery sector, whiles the single arrow shows the flow of cash in the sector. The double arrows with dotted lines indicate the flow of goods/logistics within the sector, thus from figure 1, it is observed that the MOH is responsible for overseeing the procurement of the required goods needed at the various health centres. It further indicates that, Teaching Hospitals, Central Medical Stores and Regional Hospitals are responsible for receiving the goods from the suppliers. Figure 1 further indicates that, the Upper West Regional Medical Store receives it supplies from the Central Medical Stores and then distribute its to the various health centres within the region.

Empirical Review

This section presented a general review of related literature on the study's research objectives. This was carried out in a bid to critique existing studies by comparing respective findings.

Supplier Management Strategy, Healthcare Supply Chain Performance and Patient Satisfaction

The role of modern supply by suppliers is growing of importance (Connor, Lowry & Treiblmaier, 2020). The nature of hospitals supply chain risk management is increasingly becoming complex and thus difficult for hospitals to properly manage. Suppliers primarily provide hospitals with most

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value assets (drugs and personal protective equipment in their entire systems). As such creating strong ties with suppliers through supplier chain collaboration, strategic supplier relationship management, and effective communication with suppliers is key to supply chain risk management (Jamil, Hang, Kim & Kim, 2019).

Shou, Hu, Kang, Li and Park (2018) examined the effect of risk management on firm performance after controlling for the moderating role of supplier integration. The study relied on data collected from International Manufacturing Strategy Survey for the period 2013-2014. For primary data collection, a structured questionnaire was used. The elements that measured the structures were adapted from sources validated empirically. In order to contact respondents in 22 countries, email and telephone calls were used and 652 questionnaires were obtained for the analysis of data.

Modelling of structural equations has been developed to test the nature of the relations expressed in the conceptual framework. To gauge basic strategy predisposition, the Harman single factor test was utilized. The outcomes show that the SCRM impacts both operational proficiency and adaptability emphatically and in a roundabout way. Also, incorporation between providers improves SCRM's effect on operational adaptability, yet doesn't relieve the SCRM-operational productivity relationship.

Again, hospitals procurement and supply chain managers should also have alternative suppliers which will help avoid shortage of drugs because shortage of drugs could create more deaths in the hospitals. (Fox et al., 2009). A study conducted by Abdallah, Abdullah and Mahmoud (2017) examined supplier relationship management and competitive performance of

manufacturing firms in USA, Japan, Italy, and Korea. It was found that supplier partnership positively affects competitive performance of these firms.

Utilizing straight relapse investigation; Khan, Liang and Shahzad (2015) focused on that deliberately cooperating with providers could decidedly affect inventory network execution of Chinese assembling industry. Nonetheless, an expressive report by Tangus, Oyugi and Rambo (2015) inspected the impact of provider advancement on execution of assembling firms in Kisuma County, Kenya. They tracked down that no huge connection between provider improvement and firm execution. Similarly, Meijboom, Schmidt-Bakx and Westert (2011) opined that organizations lack essential goods due to supply failures and it is affecting the cure of patients.

Production network cooperation in emergency clinic supply chains, in the inventory network basically, alluded to as a business movement where at least two gatherings complete joint tasks towards common targets (Keogh, Rejeb, Khan, Dean and Hand, 2020). It can bring about gradual advantages and benefits for included substances over the long run. Deliberately teaming up with providers permit medical clinics to obtain high-esteem sedates even in the midst of deficiencies (Mwangu and Iravo, 2015; Ryu, Park and Min, 2007; Wu et al., 2005). Organizations including IBM, Hewlett-Packard, Procter and Gamble and Dell fashioned collective long-haul associations with their providers to diminish exchange costs more serious position (Storeng, Palmer, Daire and Kloster, 2019).

Partnership partnerships help companies share risks, access additional resources, reduce transaction costs and over time increase productivity, profitability and competitive advantage (Blome et al., 2014, Zhang et al 2016).

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Hospitals can expand their operational experience through supply chain relations as central companies in the medical supply chains superior performance (Al-doori, 2019). Informing about changes in the market, it is important to bring innovation to work with suppliers and customers (i.e. patients) and newer development of products and services, because hospital managers need to understand external information designed to identify and develop opportunities (Teece, 2012).

Joint effort lessens hazard for acquirement and helps the organization arrive at a serious situation through decreased exchange costs (Handfield and Bechtel, 2002; Sheu et al., 2006). Proof shows that, cooperative connections help organizations in overseeing hazard through hazard sharing (Kogut, 1988), and furthermore gives admittance to correlative assets (Park, 2004) along these lines improving benefit and execution by making upper hand over the long haul (Mentzer et al., 2000). Previous studies have found relationship between supply chain collaboration and healthcare supply chain (Chakraborty, Bhattacharya & Dobrzykowski, 2014).

Chakraborty et al. (2014) looked at value co-creation and corporate performance impacts for the supply chain collaboration: SEM-based health care services. The study found that collaboration between suppliers influences company performance. A similar study by Chakraborty et al. (2014) examined supply chain collaboration as a risk mitigation strategy in Australia. Using structural equation modelling, the study found that each area of collaboration effectively reduces its respective supply chain risk.

Furthermore, empirical studies by Sheu, Yen and Chae (2006); and Al-Doori (2019) in Jordan Automotive industry has proved that supply chain

collaboration increased firm's performance. From the reviews it could be deduced that many of the studies on supplier management (supplier relationship management and supplier collaboration and healthcare supply chain performance) have been carried out on the composite of manufacturing firms (Oballah & Waiganjo, 2015). Few studies are in the healthcare service sector (Chakraborty, Sourabh Bhattacharya, David & Dobrzykowski, 2014).

Since most of the studies (Syed, Li, Junaid, Ye & Ziaullah, 2019; Khan et al., 2015; Shou, Hu, Kang, Li & Park, 2018; Amemba, 2013; Kanyoma, Khomba, Sankhulani & Hanif, 2013) relied on structured questionnaire for the primary data collection. These studies relied on existing validated scale for measuring the constructs hence this study also relied on some existing validated scales for measuring the constructs there operationalized to fit the context of the study. The use of a 5-point Likert scale was influenced by similar approaches used by some empirical studies (Mbah, Obiezekwem, & Okuoyibo, 2019; Syed, Junaid, Ye & Ziaullah, 2019; Ahmad, Hadyait & Rashid, 2019) for measuring the opinions of the respondents on the items in the sub-scales.

An investigation directed by (Fatima Malik and Shabbir, 2018). Nature of clinic medical care administration, fulfillment of patients and steadfastness. An aggregate of 611 patients (both indoor and open air) from six private emergency clinics in the capital city, Islamabad, Pakistan, taken part in a poll study. Information were investigated utilizing descriptor measurements, a typical technique difference, dependability, relationship, and backward apparatuses to break down client saw administration quality and how administration quality urged dedication aims to private specialist co-ops.

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Private wellbeing specialist organizations attempted to give better medical care administrations to their clients.

The outcomes affirmed that better nature of medical care administrations will in general create patient fulfilment and faithfulness. The quality parts of medical care administrations (actual climate, client amicable climate, responsiveness, correspondence, protection and security) are decidedly identified with patient faithfulness, intervened by tolerant fulfilment. Another examination by Kwon, Kim, and Martin, (2016). Medical care store network the board; vital territories for quality and monetary improvement. This paper investigates vital regions in which the store network of medical services can improve effectiveness regarding cost per patient release of medical care activities while improving the nature of care as far as bringing down the pace of re-confirmation. The paper contended that provider the board can and will all the while improve effectiveness (lessening costs) and improve patient consideration by contributing assets delivered from the sending of the production network in other creative regions where patient consideration benefits without forfeiting assets for different regions.

Inventory Management Strategies and Healthcare Supply Chain Performance and Patient Satisfaction

Stock alludes to the worth or amount of crude materials, supplies, work under way and completed inventories that are kept or put away when essential (Mbah et al., 2019) The objective is to meet client prerequisites and to decrease the expense of stocks for supervisors in stock associations. It is significant. The effect of stock administration on assembling organizations' tasks of the South-east of Nigeria has been concentrated by Mbah, Obiezekwem and

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Okuoyibo (2019). Nigeria Breweries Plc. Enugu, PZ Cusson, Aba, Seven-up Bottling Company, Aba and Cutix Cable Industry, Nnewi have been considered as assembling firms. An example size of 538 staffs were chosen and studied through organized poll organization. 5-point Likert scale was utilized to quantify the assessments of the respondents on the things that deliberate the develops considered in the examination.

Unmistakable study configuration was utilized to move toward the investigation quantitatively. IBM (SPSS) form 25, Smartpls 3.3.0 and dominate were utilized for the information handling. Graphic insights, Pearson item second connection and various relapse methods were utilized for the examination of the essential information in regard of the particular exploration destinations. It was found that there is a positive huge connection between; stock expense, in the nick of time approach, materials necessity arranging and vital provider association and operational execution of cited fabricating firms in the south-east area, Nigeria.

Kumar, Ozdamar and Zhang (2008) then again researched "an expense decrease strategy about the clinical providers from a contextual investigation in Singapore". They reasoned that reevaluating decreases might be cost-effective regardless of whether data advancements executions start with an underlying significant expense. They at that point proposed the uses of in the nick of time (JIT) and reengineering to compensate for the lack of specialists.

The impact of inventory management practices on the supply chain of government health factories, in Kisumu County, Kenya was also investigated by another study by management of the Ghana Health Service (2018). the unit of observation was 84 comprising of Procurement officers, Stores clerks,

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Logistics officers and IT employees from those health facilities. The investigation utilized both essential and optional information where a semi-organized survey was utilized to gather essential information while an auxiliary information sheet gathered auxiliary information on acquisition expenses and SPSS was utilized to deal with the information. The examination reasoned that lean stock practices, exactness of inventories and data innovation were the most suitable critical impact on the presentation of government wellbeing offices in the Kisumu County store network.

The impacts of inventor management on procurement performance on western sugar factory sugar companies Mwangu and Iravo (2015) revealed a strong positive relationship between a lean inventor system and procures performance, namely the Mumias Sugar Company, Kenya West Sugar, and the Butali Sugar Mills company. On the other hand, Ruankaew and Williams (2013), investigated the impact of inaccuracy in food inventories manufacturing in Pennsylvania, U.S.A.

The study established that inventory inaccuracy has an impact on organization's resources and performance in terms of time, cost and risk. Contrastingly, in their study, Oballah and Waiganjo (2015) examined the effect of inventory management practices on organizational performance in the Government of Health Kenyatta National Hospital facility and established that inventory shrinkage has a negative effect that could be reduced by the accuracy of inventories.

Amemba (2013) assessed empirically, the effect of implementing risk management strategies on the supply chain performance. Through a descriptive research design, twenty-four KEMSA staff in supply chain were

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surveyed using structured questionnaire. Census was employed as a tool for targeting and selecting the participants that were involved in the study. Primary data were collected through personal administration of the questionnaires. Data processing was done with descriptive statistics and inferential statistics. The results proved that the implementation of risk management was at the moderate level.

In Pennsylvania, USA, Ruankaew and Williams (2013) explored the effect of stock mistake in the food producing industry and found that stock error affects the assets and execution of an association regarding time, cost and hazard. From the prior, past examinations have to a great extent zeroed in on the composite of the assembling firms of tending to store network hazard the board and leaving out medical services inventory network execution (Manhart, Summers and Blackhurst, 2020). This could affect the accuracy and relevancy of such results when relating to specific classes of hospitals. In Ghana for instance inventory management is a strategy used by hospitals in managing their inventories such us economic order quantity, just-in-time among others (Andrews Osei Mensah, 2016).

Execution in conveyance has become a suitable differentiator. Conveyance ability and firm execution in worldwide tasks (Waller and Fawcett, 2013). It was discovered that, conveyance ability impacts the exhibition of the firm. Nonstop booking changes can subvert the certainty of the executives in the framework, prompting interruptions in the conveyance (Kafetzidakis and Mihiotis, 2012; Law and Pujawan, 2009; Pan and Pokharel, 2007). These disturbances will bring about changes in staff booking, variance in limit usage, rescheduling costs, disarray in conveyance plans, expanded

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stock expense, expanded cargo costs, additional material taking care of, more perplexing record keeping and administrative mediation (Inman and Gonsalvez, 1997).

Inventory management is an indispensable asset management to hospitals and manufacturing firms (Xu, Lu, Berendt, Jha & Mandal, 2018). However, none of these studies have examine the effect of inventory management practices on the performance of healthcare supply chain especially and patient satisfaction in the Upper West Region of Ghana. Materials and supplies are included in inventories carried out in order to sell or input into the manufacturing processes by organizations. With a good inventory system, the company therefore keeps its stock levels at minimum costs as low as possible.

Picking the right technique and the right structure allows the association to be more practical (Mohd Lair et al., 2014). Solutions like tablets, compartments and imbuements (Vila-Parrish et al., 2012), cautious and clinical supplies, for instance, needles are consistently associated with clinical consideration stock things (Adriana et al., 2010; Hani, Basri, and Winarso, 2013), gloves (Zhou and Olsen, 2017), cautious units (Rappold et al., 2011), clean instruments (Dellaert and Van De Poel, 1996; Hafnika, Farmaciawaty, Adhiutama, and Basri, 2016), and clinical equipment (O'Neill, Murphy, Gray, and Stoner, 2001), cautious material (O'Neill, Murphy, Gray, and Stoner, 2001; Saha and Ray, 2019).

Ali directed another examination (Iqbal and Asif, 2012). The executives of stock and its consequences for customer fulfillment. The investigation tracked down that the appropriate stock administration framework diminishes the danger of short inventories, accordingly fundamentally affecting consumer

loyalty, which decreases the expense of lost clients. Besides, an overview by Mahyadin, Mahidin, Asaad and Zien, (2013). The impact of stock administration rehearses towards stock administration execution in Malaysian public medical clinics, utilizing the quantitative technique, the connections between various factors are proposed to be tried.

Studies have shown that inadequate management has been caused by various reasons, such as level of management commitment, costs and management levels, the skills of employees that would invariably have adverse impacts on patient satisfaction. The study addresses this gap that inventory management significantly improves healthcare supply chain performance in Upper West.

Last Mass Distribution Management and Healthcare Supply Chain Performance and Patient Satisfaction

Dispersion and other outbound coordination capacities centre around various deliberately significant store network the executives issues like JIT and custom conveyance, area of stockrooms and offices, custom item administration issues, the board of client connections and arrangement of correspondence data frameworks (Xu et al., 2018) Transportation is considered as significant component of coordination and store network achievement (Yang et al. (2004). A transportation framework that offers a solid support level diminish production network vulnerability and the sum stock needed all through the production network (Nguegan & Mafini, 2017).

An examination by Yang et al. (2004) for example was done on 249 assembling firms the investigation reasoned that, the effect of inbound and outbound transportation execution regarding meeting conveyance plans and

giving convenient answer to requests and the company's capacity to accomplish item assortment, agreeably conveyance administration and in general execution. Additionally, (Ortiz-Catalan et al., 2016) directed an examination on the coordination administrations and questionable interest for clinics in the State of California. The examination reasoned that coordination administrations have solid impacts in neighbourhood medical services frameworks' foundations on the off chance that they are powerless.

This paper investigated the effect of transport re-appropriating on the store network execution for the 30 drug organizations working in Pakistan. Results affirmed that the rethinking of transportation by the illustrated business improves SCM execution as well as altogether impacts the productivity and viability of the inventory network for the drug area in Pakistan.

Sohal, Millen and Moss (2002) studied Australian manufacturing companies to determine how externalization influences their supply chain cost and agility. The study found a significant positive relationship with the agility of the supply chain and the company overall costs for the outsourcing of transport. In Ghana, studies by Mensah, Diyuoh and Oppong (2014) found transportation effectiveness as a strategy adopted by manufacturing firms in managing their supply chain risk.

However, there is little evidence of the effect of transportation on healthcare supply chain performance among hospitals in Ghana especially in Upper West Region. Also, none of these study within the Ghanaian context adopted a rigorous statistical tool including SEM in analysing their data. This could affect the reliability and generalisation of their respective findings. From the review, it could be deduced that majority of the studies on transportation

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management and firm performance have been carried out on the composite of manufacturing firms (Yang et al. (2004).

Few studies concentrated on transportation management in Ghana hospitals supply chain (Bossert, Bowser & Amenyah, 2007). However, none of these studies were found within Upper West hospitals. Using structural equation modelling this study hypothesis that transportation management significantly improves performance of healthcare supply chain performance in Upper West Region of Ghana.

An investigation led by Atuoye, Rishworth, Galaa, Boamah and Luginaah (2015). Last mass circulation boundaries to getting to provincial Ghana's maternal and kid wellbeing administrations. This paper researches last mass dispersion obstructions in wellbeing access in a country setting dependent on saw cause, ways of dealing with stress and techniques for a manageable transportation framework, eight centre gathering conversations including guys (n = 40) and females (n = 45) in rustic networks in a CHPS zone in the Upper West Region of Ghana were directed among September and December 2013. The investigation discovered that, deficient vehicular vehicle is smothering the possible positive effect of CHPS on maternal and kid wellbeing in the upper west area.

Hospitals Supply Chain Performance and Patient Satisfaction

The Supply Chain Performance is a checking cycle for leading a review investigation to survey if fitting cycles have been followed and if the ideal destinations inside the store network have been accomplished (Stephens, 2015). Patient fulfillment is getting progressively significant both for medical services suppliers' monetary presentation and for patient prosperity. Patient

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fulfillment is a mind boggling building however. As indicated by Ferrand et al. (2016) and Benton and Maloni (2005) the impact of force driven purchaser merchant connections on production network fulfillment and the provider relationship was found to decidedly affect both Performance and feeling fulfilled.

Moreover, an investigation directed by Aronsson, Abrahamsson and Spens (2011) assessed the inventory chains in medical care frameworks as far as 'deftness and lean assembling'. The investigation attempted to uncover the cycle of medical care supply chains and how dexterous and lean it very well may be by making a production network course and what is required for the use of an exact examination in store network the board in medical care to guarantee adequacy of the inventory chains inside the medical care frameworks.

Additionally, a review by (Khudair, 2011). The point of the paper was to contemplate drug store administration sway on quiet fulfillment and to figure out what factors notably interface with drug administration execution at Hamad General Hospital in Qatar, the examination gives measurable confirmation that patient fulfilment is positive affected by the expeditiousness of administration, drug specialist's demeanour, drug advising, drug store area and holding up region. Nonetheless, the stock of prescription had no impact on understanding fulfilment. An examination by Javed (2018) the reason for this paper was to survey the impact of patients' assumptions from medical care administration quality on their fulfilment with nursing openly and private clinics of Pakistan and the outcomes uncover that the patient fulfilment is most emphatically identified with sympathy in open area and to responsiveness in private area.

A study (Mustaffa & Potter 2009) has shown that effective supply chain performance in Malaysia can play a vital role in overall improvement of operational effectiveness within Indian healthcare industries, given the close relationship between supply chain management (SCM) and SCP practices with the highest levels of efficiency and performance.

Another investigation by Srivastava and Singh (2020) investigating coordinated medical care production network execution: an underlying relationship-utilizing specialist co-op viewpoint was tried utilizing halfway least square primary condition demonstrating (PLS-SEM). It was tracked down that the exhibition of an incorporated inventory network for medical care was decidedly influenced. Furthermore, improved incorporated production network performance emphatically affects patient concentration and nature of care in the clinic's operational cycles.

Another contemplated led by Polater, and Demirdogen (2018), an examination of medical services production network the board and patient responsiveness. A Likert scale was utilized with five focuses and 23 things and the displaying of underlying conditions was applied. For public clinics, the scale was applied to break down the information, factual programming programs (SPSS 18 and LISREL 8.8) were utilized. An example of 129 coordination and production network experts in open emergency clinics in urban communities addressing various areas of Turkey is the reason for the examination of the announced insights.

In view of the investigation, the examination theories are upheld. The examination uncovers that inventory network adaptability has an intercession impact between combination of inventory network, request guaging, execution

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of the provider and responsiveness of the patient. Be that as it may, none of such investigations have been analyzed the impact of production network execution on understanding fulfillment in the medical clinics certain particularly in upper west area of Ghana, the examination tends to this hole by hypothesing powerful inventory network execution essentially improves patient fulfillment in upper west locale of Ghana.

Conceptual Framework

The conceptual framework is a structure of concepts that are designed as a map to show the relationship between the variables in research (Mugenda & Mugenda, 2003). The framework was designed specifically to explain the relation between the independent variable and the dependent study variable in Figure 2.
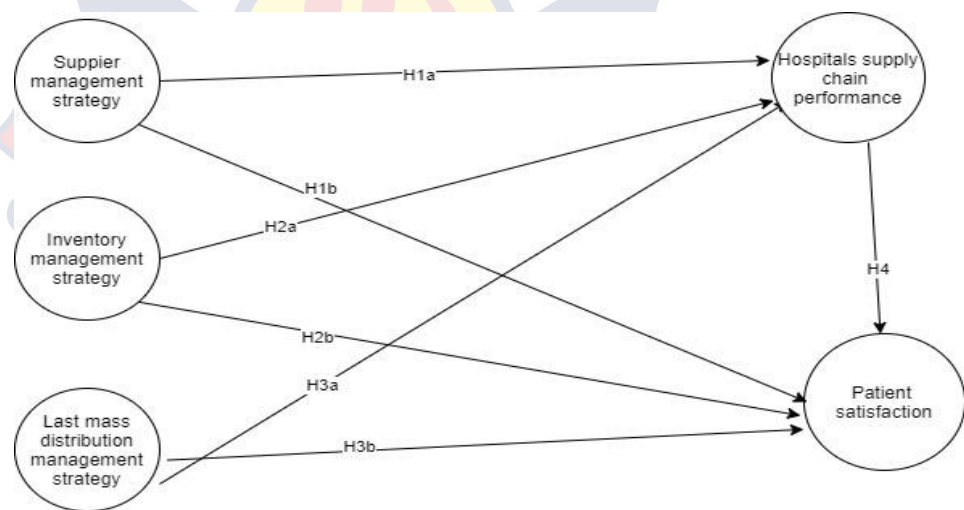
Figure 2: Conceptual Framework
Source: Author's own construct (2020)

From Figure 2, performance of healthcare delivery is dependent on the various supply chain management strategies. As such, any change, either positive or negative, in any of the supply chain risk management strategies is likely to cause a change in performance of healthcare delivery. However, the

framework does not provide the extent to which the various supply chain management strategies influences performance of healthcare delivery. The framework was supported by reviews (Campen, Sixma, Friele & Kerssens, 1995; Mishra, 2019; Munyuko, 2015). The system was, consequently, created to give a pictorial perspective on the connection between the different inventory network the executives methodologies and execution of medical services conveyance and patients fulfillment among emergency clinics in the upper west area of Ghana.

Chapter Summary

The chapter thoroughly examined the study's literature to provide the study's findings with explanations and reasons. The select network theory and resource-based theory was specifically provided for this chapter. It additionally introduced conversation of ideas, exact audits and reasonable system of the examination. The following part take a gander at the examination strategies utilized in the investigation.

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CHAPTER THREE

RESEARCH METHODS

Introduction

The part examined the techniques embraced in completing the investigation. The specialist talked about the examination reasoning, research plan, the investigation region, populace, testing methodology and information assortment instruments and information examination of the investigation. Other issues including validity, reliability and ethical considerations were also addressed in this chapter.

Research Paradigm

The research paradigm is known as a general philosophical guiding principle on the world and the nature of research (Peng & Shiyu, 2019). The positionalist philosophy of Comte (1789-1857) reflects the suppositions that logical, measurement and the use of deductive reasoning can be applied for the study of phenomena to prove absolute truths (Ballard, 2018; Rahi, Alnaser & Ghani, 2019). Thus, in this study, it is proposed through application of scientific research methodology, objective results relating to the specific research objectives, would be produced to aid scientific-oriented decisions based on the findings of this study among its stakeholders.

Acceptance, being the essential nature of positivism battles that what is discernible by the human resources is real proposing the presence of an objective general reality that is the subject of boundless laws and parts (Kankam, 2019). Inside the positivist perspective the consideration is on objectivity and distance including theory or speculation testing highlighting

both the expert and the subject of investigation as separated free development (Kumar et al, 2019; Kankam, 2019). Thus, the researcher's part inside this philosophical position is that of objectivity and distance, swashbuckler of general genuine components, verifier of hypotheses/hypothesis in the journey for fair far and wide assurances (Burns and Grove, 2011).

The benefits of the positivist paradigm include the ability to generate replicable findings which are considered generalizable (Kiyala, 2019; Shah, Shah & Khaskhelly, 2018). Criticism is also raised in relation to its focus on measuring observable phenomena against the exclusion of non-observable phenomena (de Chantal, Gagnon-St-Pierre & Markovits, 2019; Shah, Shah & Khaskhelly, 2018; Denzin & Lincoln 2011). Positivism philosophy goes with deductive reasoning (Behfar & Okhuysen, 2018) which is much tuned to testing hypothesis for confirmation or otherwise of theoretical claims (Livesey, Greenaway, Schubert & Thorwart, 2019; Cramer-Petersen, Christensen & Ahmed-Kristensen, 2019).

Research Approach

Exploration approach is an arrangement and interaction which involves the applicable expansive suspicions for the itemized strategies for information assortment, examination and understanding (Boohene, Sheridan and Kotey, 2008; Creswell, 2014) The investigation received the positivism worldview accordingly the quantitative methodology. The quantitative methodology empowers the utilization of quantitative procedures in portraying issues in the examination to help speculation results (Creswell and Ph, 2016). The approach is scientific, fast and draw logical conclusions from numeral values obtained

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from surveys and questionnaires as data collection techniques (Crotty, 1998; Cresswell, 2014).

It is therefore important for examining causes and effect relationships between and among variables (Creswell & Creswell, 2017). More importantly the study seeks to examine the effects of supply chain management on performance of hospitals. However, the quantitative technique has been criticised for its inability to effectively gauge human behaviour (Crotty, 1998). Clotty added that the technique is rigid, artificial and ineffective in generating theories. Despites its shortfalls, the quantitative technique was adopted due to research philosophy and the kind of the research objectives. Also, it's good for establishing cause and effect relationships among variables considering supply chain management such as supplier management, inventory management, last mass distribution management and hospitals supply chain performance.

Also, the variables and the constructs were measured numerically with appropriate scales of measurements including nominal scale, ordinal scales, interval scale and ratio scale as and when appropriate. For instance, a 5-point Likert scale to be employed to assess the opinions of the respondents on the key items that measured the sub-scales to measure the key constructs considered in the study. Measuring the constructs and variables quantitatively made it possible for the research objectives to be subjected into statistical manipulations given the appropriateness of data processing software and statistical Technique-Structural equation modelling. Guided by the multicausation, the study holds the view that the concept of probabilistic causation holds; that one event will tend to contribute to an effect (Nadler, Gluscevic, Boddy & Wechsler, 2019).

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Research Design

The decision of examination configuration is generally reliant upon the exploration way to deal with the investigation (Vilko, 2012; Mhelembe and Mafini, 2019). In view of the quantitative way to deal with the investigation, the informative examination configuration was embraced. The informative builds comprehension of a given subject, gives better and clear ends to help speculation of discoveries (Burns et al., 2011; Creswell, 2014). It is successful for giving data about a given circumstance. Saunders, Lewis and Thornhill (2011) added the illustrative plan empowers analysts to have more command over their exploration measures.

Illustrative plan could utilize organized surveys to acquired information from respondents who are dissipated across a given region. Accordingly, the plan is suitable for getting information from agent of clinics dissipated across the medical clinics chose in the Upper West Region. Also, this design uses statistical tools which involves great amount of numerical data to analyse cause and effect relationships between and among variables (Wahyuni, 2012; Beins & McCartyy, 2017). This design was adopted because the study sort to establish cause and effect relationships between and among variables prissily supply chain management strategies and hospitals performance.

However, the explanatory design has some shortfalls that could affect the study's findings (Robson, Plangger, Kietzmann, Mccarthy & Pitt, 2015; Wildemuth, 2016). According to Wildemuth (2016), ensuring a representative sample using this design is noted that, with this design, information accumulated dependent on respondents' perspectives and feelings which could

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give space for one-sided reactions. This could in turn affect the objectiveness of the results (Creswell & Creswell, 2017). However, the explanatory design was more suitable for my study due to the purpose of the study couple with the research philosophy and approach of the study.

Study Area

The investigation was led in Hospitals inside the extent of Upper West Region of Ghana. The wellbeing area is a vital supporter of Ghana's economy (Frodl et al., 2012). The area essentially is to get the required medications and PPEs to address the issues of patients (Mills, Brugha, Hanson and Mcpake, 2002). The Upper West Region, masterminded in the north-western piece of Ghana, lies between longitude 1º 25" W and 2º 45" W and degrees 9º 30" N and 11ºN. It is lined southward by the Savana territory, northward and West by Burkina Faso and eastward by the Upper East area. With a space of 18,476 km2 tending to 12.7 percent of Ghana's finished land area.

The locale's populace thickness remains at 40 people for each square kilometer. Its Ghana's seventh-biggest locale with an aggregate of 11 areas specifically Dafiama Bussie, Jirapa, Lammussie Karni, Nadowli-Kaleo, Nandom, Sissala East, Sissala West, Wa West, Wa East and Wa Municipal.

Nonetheless, the Sissala East, Wa East and parts of the Nadowli-Kaleo regions (in the eastern pieces of the district) have nucleated networks that are far separated, with a resultant populace thickness of 13 people for every square kilometre. This suggests that wellbeing staffs should go significant distance to convey wellbeing administrations including vaccination to the populace. The Upper West Region has potentials for international and inter-regional trade and other bilateral relations. The region is one of the poor regions in Ghana

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where most people practice open defecation, smoking, lithering the environment and mining. These practice exposes its citizens to sicknesses such as cholera, pneumonia and malaria as well as other notable diseases such as tuberculosis, Acute Respiratory Truck Infections, Anemia (Osumanu, Kosoe & Ategeeng, 2019).

To enable the hospitals in the region, curb these situations, the government of Ghana supplies these centres with medical supplies such as drugs, personal protective equipment's (PPEs), logistics as well as ward beds etc. The locale's primary financial movement is horticulture. Yields developed incorporate maize, millet, groundnuts, okro, shea margarine, and rice. Since the locale is poor and the dry season is long, stretching out roughly from December to May, numerous individuals leave the region for at any rate a piece of the year to work in the southern piece of Ghana for greener fields. The Region's all out populace is 576,583. This records for three percent of the public populace. The area's populace isn't equally appropriated among the five locales. Wa has the biggest populace of 224,066, addressing 38.9% of the locale's populace, while the excess regions each have around 15.0%.
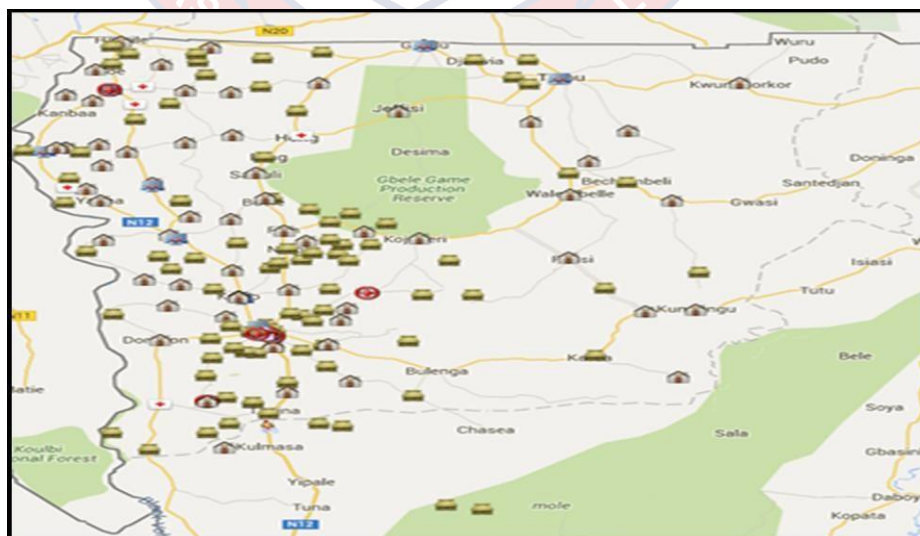
Figure 3: Map of Upper West Region.
Source: UW/R Annual Health Report (2016)

Population

Every study is centered on an object of interest from which information is drawn to establish a study. The number of inhabitants in an examination is characterized as the assortment of all people who share comparable attributes dependent on what a scientist is keen on and consequently fit the bill to be remembered for the investigation (Creswell 2014, p.18). Inside the setting of exploration, a populace is characterized collectively of people taken from everybody who share a typical trademark, like age, sex, or work conditions who are investigated on in light of their importance to an examination question (Plonsky and Oswald, 2020).

The population of the study was made up of A and B. The 'A' population were the health service providers and the 'B' population were patients who come to the hospitals for treatment within Upper West region of Ghana. The 'A' population were made up of procurement/Purchasing officers/Storekeepers, Medical Doctors, Senior Nurses (Midwifery), pharmacist, Hospitals Administrators, Information Officers, Head of OPD unit, Accountants.

These key personnel were chosen due to their philosophies, values and their direct involvement in related to drugs handling and prescription of drugs to patients in their respective hospitals as well as receiving PPEs and other logistics to aid perform their core duties, the target population was chosen because the study want to ascertain the challenges they encounter when providing health care services to the people.

Thus, their abilities to influence policies relating to supply chain management (supplier management, inventory management and last mass

distribution management) would help to obtained relevant information aimed at drawing objectives conclusions. The 'B' population was made up of only Female ward in-patients. The Female ward in-patients was chosen because they are part of the minority group in society and constitute the frequently served clients of the hospitals.

Sampling Procedure

According to Fraenkel and Wallen (2000), a sample should be carefully selected to be representative of the population, especially in situations where the population is very large. The study employed the census method in the case of the sample for health staff because the population was small. The census technique was chosen to provide more accuracy and reliability of the study's findings Cresswell (2014). In case of the female ward in-patients, a sample size of 132 was determined out of the study population of 200 using the Krejcie and Morgan (1970) sample size determination table. Furthermore, the simple random technique was used in a case of the Female ward in-patients. The study employed simple random technique for the selection of the patient's aspect. Simple random sampling was carried out through the generation of random numbers for the elements in the sampling frame through a computer application called Random Number Generator [RNG].

This gave each element in the sampling frame equal chance of selection which means the researcher did not in any way influenced who participates in the study (Vijayalakshmi & Sivapragasam, 2019). Random sampling is a typical class of probability sampling technique which is a prerequisite for the conduct of multiple regression analysis in predictive studies (Luedtke,

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Sadikova & Kessler, 2019). This was made possible through the lottery method where each patient was given a number tag ranging from 1-200.

Therefore, data was gathered from eight key representatives and the female ward in-patients of each of the 11 District hospitals and the Upper West Regional Hospitals with 96 and 132 female ward patients respectively who are the respondents, the rationale for selecting key personnel as respondents and female ward patients was due to philosophies, values and job positions directly influence their hospitals directions in relation to hospital supply chain performance and the selection of the female ward patients was selected because they are part of the minority group.

This therefore means that, section A, the entire target population was used for the study and section B target population was randomly selected and each of them have equal chance of been selected. Using the entire target population for the study/ survey is called census sampling and randomly selecting the respondents from the entire population is called simple random sampling. Harding (2006) defines census as a data collection process from each unit of a surveyed population rather than a samples selection process. The census study is concerned with the use for a study of the overall target population enumeration. The main purpose for selecting the entire population for the research is due to small size of the total population and with this technique, a true measure of the population is provided.

Data Collection Instrument

The investigation utilized surveys as the examination instrument to gather information for the investigation. An essential information assortment, explicitly, an organized survey was utilized to gather information from the

PSL-SEM strategy. Saunders et al. (2011) contends that, with organized poll, every individual is approached to react to similar set inquiries in a foreordain request. Organized poll is useful for quantitative investigation since it helps in getting target reactions for measurable examination (Saunders et al., 2011). A poll is a composed rundown of inquiries, the responses to which are recorded by the respondents (Kumar, 2005).

All the factors covered in the questionnaire were related to key constructs covering supplier management strategy, inventory management strategy, last mass distribution strategy, hospital supply chain and patient's satisfaction. in the healthcare delivery. Malhotra and Birks (2007) indicated that questionnaire surveys may be the most widely used research data collection technology and may be used for measuring issues crucial to the management and development of businesses.

The survey was planned dependent on the particular exploration destinations and the speculations of the examination. The poll was organized survey. just shut finished required and direct inquiries were utilized, to permit respondents to browse among a given arrangement of reactions and required the respondents to look at every conceivable reaction free of the other decision. The close by completed things used plan – an overview of lead, characteristics or various components that the researcher is inspecting – and Likert scale – which is more useful when direct, attitude or other marvel of interest ought to be surveyed in a continuum (Leedy and Ormrod, 2010). The appraisals of the respondents were assessed on a five-point Likert scale.

The questionnaire was made up of four sections. Section "A" measured the biodata of the respondents surveyed. The items were measured on a close-

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ended structure. Section "B. contained question items on supply chain risk management profile and also capture questions items (39) on all the three independent variables of the study. Section "C" however examined the state of satisfaction with hospital supply chain performance of healthcare delivery system. The satisfaction with supply chain risk management scale was made up of (11) items.

Respondents were approached to express the degree of understanding or conflict in regards to the assertions addressing the things. Area D contained (11) things pointed toward estimating patient's fulfillment. The inquiry things under area A, B, C and D were totally put on a 5-point Likert-like scale Ineffective; 2= Slightly compelling; 3= Moderately powerful; 4= Effective 5=Highly viable scale. Agreeing Cresswell (2014) Likert like scale was proper as it permits the utilization of both engaging and inferential instruments for information examination.

The poll was considered proper for the investigation since it gives a lot speedier methods for social affair data from an enormous populace. Moreover, it was fitting to utilize the survey since the respondents had the option to peruse and comprehend the things in the instrument. Once more, it is practical, simple to develop, and questions are predictable and uniform. Survey additionally permits namelessness of the respondents which makes it simpler for the respondents to chip in data unafraid of exploitation (Gravetter and Forzano, 2006).

However, Fraenkel and Wallen (2000) believe that questionnaires do not provide an opportunity to collect additional information but are restricted to the literate population. Fortunately for this study, all sampled respondents in

all section B were able to read and write as expected with exception of the Female ward in-patients who cannot read and write, the personnel who have been employed to assist to take the data will take their time explain to the patients to aid them answer the questionnaire. The questioning strategy includes close-ended. The closed- ended items were made up of alternative options which the respondents were to choose from, no room for self-expression, respondents required less effort to respond.

Data Collection Procedure

The objective of the study was explained and this paved the way without difficulty for the respondents to obtain the questionnaires. Before the data exercise, authority note was then obtained from the Head of Department of Marketing and Supply Chain Management. This was carried out after formal permission for the data collection had been granted by management of Upper West Regional Health Directorate. The researchers also received answers to the questions. These questionnaires were self-administered and this led to contacts and a higher rate of recovery (Leedy & Ormrod, 2010).

Authority note was approved on 27st August 2020 and collected begins on 2nd September 2020 and end 2nd October 2020. Every member was given a survey and a short foundation to the examination. In section A, 100% response rate was recorded, meaning all the distributed questionnaires were filled by the health staff and retrieved. In section B, 73% response rate was recorded from the retrieved questionnaires from the patients.

Ethical Consideration

Ethics are the standards or standards of behaviour, according to Saundres, Lewis and Thornhill (2007), and guiding moral decisions regarding our behavior and our relationship with others. Greener and Martelli, (2018) strongly supports the need for researchers to observe some ethical principles such as nonmaleficence, beneficence, autonomy and justice especially in primary research. Including informed consent, voluntary involvement, right to privacy, plagiarism, anonymity and privacy issues, the Newman et al. (2014) have proposed some key rules for data collection.

In terms of informed consent, the regional health directorate and the respondents are aware of their involvement in the data collection exercise. This was initially achieved by obtaining   introductory letter from Upper West Regional Health Directorate of the various hospitals under studied. All required information from different sources was paraphrased and referenced accordingly with regard to plagiarism. A plagiarism test was then tested to check for possible plagiarism in the study.

Anonymity was ensured by excluding all personal details such as names and other sensitive personal information that could expose them. These measures were carried out to make sure that the identities of the respondents are not exposed to the public. Confidentiality was guaranteed by ensuring that all information supplied was kept confidential and that none of these information was used for any purpose other than this study. In brief, the study provided adequate attention to all ethical issues.

Data Processing and Analysis

Assessment of data is a pattern of adjusting, cleaning, changing, and showing data to highlight significant information, thoughts, finishes, and supporting dynamic (Adèr and Adèr, 2008). The responses from the studies were then changed, coded and entered Statistical Package for Social Science (SPSS) variation 25.0 for dealing with. This verifiable writing computer programs is recommended for use in examinations in social sciences (Richardson, et al., 2010). The connection data were inspected and interpreted with clear estimations like the usage of means, repeat count, rate in regards to the lion's offer standard using Partial Least Squares-Structural Equation Modeling (PLS-SEM) independently.

The clinics profile and respondents' segment qualities were investigated utilizing frequencies and rates. Preceding the theory testing, the examination depicted the different inventory network the executives procedures by utilizing the mean score, standard deviation, the mean score for example has broadly utilized us a standard proportion of focal propensity of a circulation (Cresswell, 2014). The mean score was accounted for utilizing a mean size of 1 to 5 with mean scores 1 to 2.9 demonstrating low; while 3 to 5 showing high.

In analysing the data, categories were identified and put into themes for presentation and discussion. Inferential and descriptive statistical technique (Pearson product moment correlation) was used to assess the nature and strength of relationship between supply chain risk management and healthcare delivery. The findings were presented on Tables and Figures in a summarized form that aided easy understanding of the finding. The examination's

exploration speculations were tried utilizing the Partial Least Square in the Structural Equation Modeling procedure (PLS-SEM) subsequent to meeting hidden suspicions including multicollinearity, unwavering quality and legitimacy.

Chapter Summary

The part examined the vital components of examination techniques comparable to the exploration configuration, research reasoning, study territory, populace, testing strategy, information assortment method and information handling and investigation of the investigation. The examination embraced positivism reasoning and quantitative methodology. Once more, logical examination configuration was embraced because of the investigation's destinations. Both inferential and unmistakable factual apparatuses including rates frequencies, and PLS-SEM were utilized for the information examination and results was introduced in tables and figures.
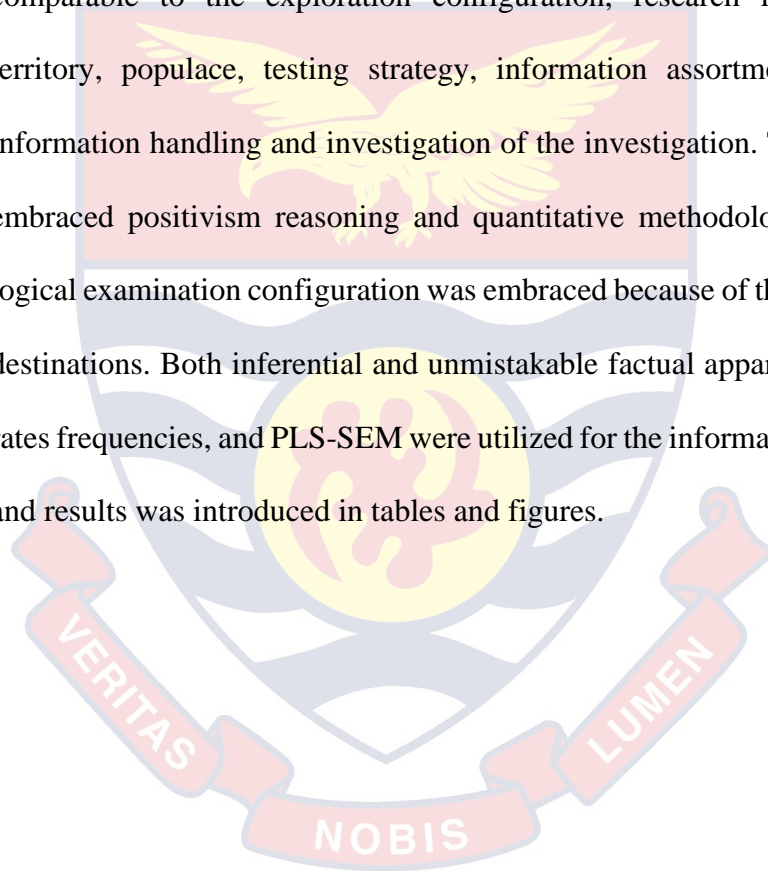
CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The investigation was directed to look at the impact of clinical inventory network the board on medical services execution of some chose clinics in the Upper West Region of Ghana. In particular, the investigation looked to inspect the impact of provider the board system on the medical services store network execution of some chose emergency clinics in Upper West Region in Ghana, dissect the impact of stock administration procedure on medical clinics' production network execution, evaluate the impact of keep going mass dissemination on medical clinic inventory network execution in the Upper West Region of Ghana and analyzed the impact of emergency clinic store network execution on quiet's fulfillment.

Demographics Information of Respondents

Demographic information of the respondents was descriptively measured with frequency and percentages (%) because these statistical tools are appropriate to measure categorical data. This information provides enough description of the respondents that were surveyed so as to prove the sample was selected from the target population. The findings were presented in Table 1. The demographics of the respondents surveyed in this study was measured as depicted in Table 1 below. It was revealed that the number of males who responded to the questionnaire were 68 representing 66.7 of the participants and the number of females who responded to the questionnaire were 34 representing

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33.3% of the participants. The findings on the sex demographic characteristics

of the respondents show that majority of the respondents were males.

Table 1: Demographic Information of Respondents

Variable	Options	Frequency	Percentage%
Sex	Male Female	68	66.7
		34	33.3
Total		102	100
Age	18-35 years	63	61.8
	36-45 years	28	27.5
	46-55 years	9	8.8
	Over 55 years	2	2.0
Total		102	100
Level of Education	No formal Education	1	1
	Below HND	19	18.6
	HND/Equivalent	33	32.4
	First degree	39	38.2
	Post Graduate degree	10	9.8
Total		102	100
Length of service	Less than 5 years	42	41.2
	5-10 years	41	40.2
	11-15 years	11	10.8
	More than 15 years	8	7.8
Total		102	100
Ownership status Total	Public	98	96.1
	Private	4	3.9
		102	100

Source: Field survey, (2020)

Secondly, out of the total sample who answered the questionnaires, 63

of them were between the ages of 18-35 years representing 61.8%, 28 of them

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were between the ages of 36-45 years representing 27.5%, 9 of them were between the ages of 46-55 representing 8.8% and 2 of them were over 55 years of age representing 2.0%. The findings on the age demographic characteristics of the respondents show that majority of the respondents were between the ages of 18-35.

Also, out of the total sample population who answered the questionnaires about the educational level of the respondents, it was revealed that 1 of them have no formal education 1%, 19 of them have certificates below HND representing 18.6%, 33 of them have an HND/Equivalent representing 32.4%, 39 of them have a first degree representing 38.2%, and 10 of them have Post Graduate representing 9.8%. The findings of the educational level of the respondent demographic characteristics of the respondents show that majority of the respondents have a first-degree.

Furthermore, out of the total sample population who answered the questionnaires about the length of service, 42 of them have work with their various hospital for less than 5 years representing 41.2%, 41 of them have work with the hospitals for 5-10 years representing 40.2%, 11 of them have work with the hospitals for 11-15 years representing 10.8% and 8 of them have work with the hospitals for over 15 years representing 7.8, the findings on the length of service demographic characteristics of the respondents show that majority of the respondents have worked for less than 5 years in their respective hospitals.

Descriptive Statistics of Constructs

The constructs were descriptively measured with the means (M) and standard deviation (SD). The interpretation of the mean was based on these subjectively created criteria as informed by previous studies and scale of

measurement. *0 – 1.49=Not at all concur; 1.5-2.49= somewhat concur; 2.5 – 3.49= modestly concur; 3.5-4.49=Agree and 4.5 – 6= profoundly concur.*

Table 2: Supplier Management Strategy

	Mean	Std. Deviation
Alternative suppliers' dealings	3.5196	1.06919
Supplier collaboration	3.5098	.94130
Strategic alliance	3.6863	.97473
Supplier communication	3.9314	.91478
Information sharing	3.7451	.87525
Suppliers incentives	2.8431	1.22471
Suppliers possible supply chain risk.	3.4118	1.02786
Meetings with inventory staff and its suppliers	3.0392	1.18507
Supplier involvement in all inventory-related.	3.3922	.97653

Source: Field survey, (2020)

The findings relating to supplier management construct indicated that the respondents agreed that the hospital deal with alternative suppliers (M=3:5196 SD=1.06919), that hospital pursues supplier collaboration (M=3.5098: SD=0.94130), that hospital builds strong strategic alliance with suppliers (M=3.6863: SD=0.97473), the hospital has good communication with its suppliers (M=3.9314: SD=0.91478), there is complete information sharing between the hospital and its suppliers (M=3.7451: SD=0.87525), the hospital provides incentives to suppliers as source of motivation (M=2.8431: SD=1.22471), the hospital regularly monitors our suppliers for possible supply chain risk (M=3.4118: SD=1.0278), there are frequent meetings between the

hospital inventory staff and its suppliers (M=3.0392: SD=1.18507), and the hospital ensures early supplier involvement in all inventory-related (M=3.3922: SD=0.97653).

These results are in line with the findings of Fox et al., (2009) and Mwangu and Iravo (2015), Ryu, Park and Min (2007) and Wu et al. (2005). Fox et al. (2009) stated that, hospitals procurement and supply chain managers should have alternative suppliers which will help avoid shortage of drugs because shortage of drugs could create more deaths in the hospitals. Also, Mwangu and Iravo (2015), Ryu, Park and Min (2007) and Wu et al. (2005) stressed that strategically collaborating with suppliers allow hospitals to acquire high-value drugs even in times of shortages
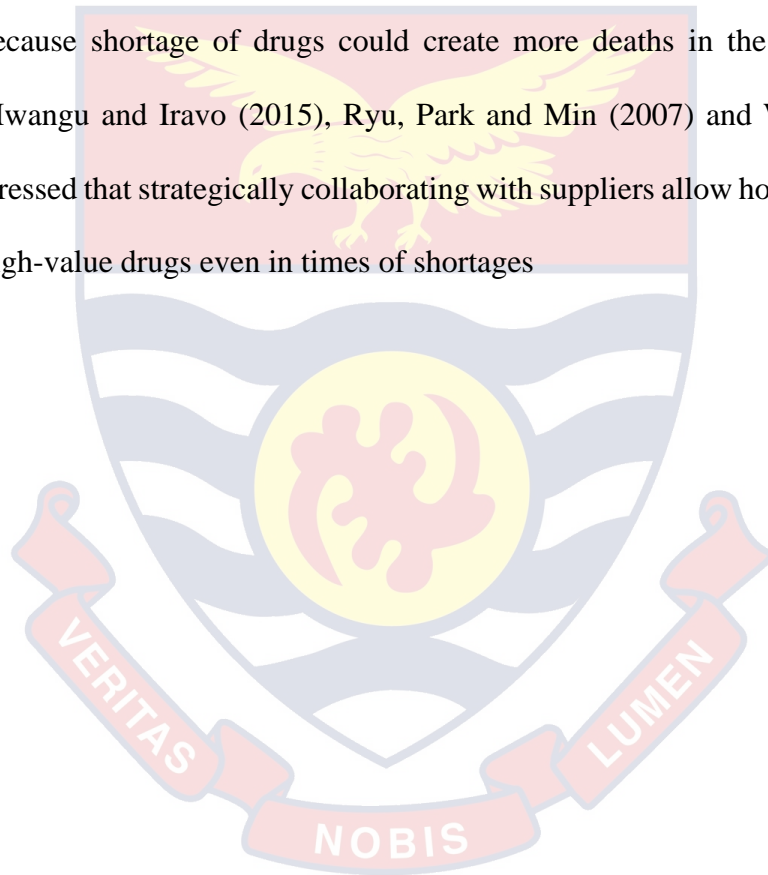
Table 3: Inventory Management Strategy

	Mean	Std. Deviation
Uses external and internal medicines to select health commodities	3.5098	.87592
Establishes maximum, minimum and reorder levels for hospital commodities	3.7157	.98882
The hospital engages in stock taking	4.1373	.82100
The hospital uses past consumption to determine quantity of health commodity needed	3.7157	1.02809
The hospital use request from users to determine the quantity of health commodity needed	3.4902	1.11466
The hospital plan in advance	3.8431	.92002
The firm uses enterprise resource planning system to track its inventory	3.3333	1.14609
Inventory items have been classified according to their order of importance	3.6863	.95420
Economic order quantity model.	3.3627	.95222
Periodical replenishment of stocks	3.7353	.83163
Maintains a minimum stock level	3.4804	.99235
JIT stock control system	3.1765	1.03801
Uses the JIT system to eliminate waste	3.2157	1.02085
The inventory management practices enable to avoid inventory bottleneck in production	3.6471	.82830
Receives drugs and PPE at schedule delivery time.	3.4216	1.04773
Practices vender managed inventory systems	3.3333	1.11988
Automatic stock tracking	2.9510	1.23783
Exercises selective control over its inventory items	3.3333	1.01799
Collaborates with suppliers in system upgrade	3.7451	1.00184

Source: Field survey, (2020)

The extent of respondents' agreement regarding the items measuring inventory management, it was discovered that in these instances, the respondents agreed that hospital uses external and internal medicines to select health commodities (M=3.5098: SD=0.87592), that the hospital establish maximum, minimum and reorder levels for hospital commodities (M=3.7157: SD=0.98882), that the hospital engages in stock taking (M=4.1373: SD=0.82100), the hospital uses past consumption to determine quantity of health commodity needed (M=3.7157: SD=1.02809), the hospital use request from users to determine the quantity of health commodity needed (M=3.4902: SD=1.11466), the hospital plan in advance (M=3.8431: SD=0.92002).

The firm uses enterprise resource planning system (Barcodes) to track its inventory (M=3.3627: SD=0.95222), all the hospital inventory items have been classified according to their order of importance (M=3.7353: SD=0.83163), the hospital adopts a classical economic order quantity model (M=3.4804: SD=0.99235), the hospital uses just in time stock control system (M=3.1765: SD=1.03801), the hospital uses the JIT system to eliminate waste (M=3.2157: SD=1.02085), the inventory management practices enable the hospital to avoid inventory bottleneck in production (M=3.6471: SD=0.82830), the hospital receives drugs and PPE at schedule delivery time (M=3.4216: SD=1.04773), the hospital practices vender managed inventory systems (M=3.3333: SD=1.11988), The hospital uses automatic stock tracking (M=2.9510: SD=1.23783), The hospital exercises selective control over its inventory items (M=3.333: SD=1.01799) and lastly it was found that the respondents further agreed that hospital collaborates with its suppliers in system upgrade (M=3.7451: SD=1.00184).

These results are supported by works of Kumar, Ozdamar and Zhang (2008) whose findings suggested that, the applications of just-in-time (JIT) and reengineering help in reducing deficiency of goods. Also, the result by Management (2018) indicated that, lean inventory practices, accuracy of inventories and information technology were the most appropriate practice that has a significant effect on the performance of government health facilities in the Kisumu County supply chain.

Table 4: Last Mass Distribution Management

	Mean	Std. Deviation
The transportation management practices enable timely delivery of products and services to customers	3.2647	.98430
Timely delivery of drugs and PPE	3.2353	.93530
Effective distribution of drugs and PPE	3.3235	1.04514
Long lead time	3.1863	1.01211
Short lead time	3.1471	1.04736
Transportation management products are made available	3.5588	1.10421
Products and services are delivered using the right mode of transportation	3.6961	.97279
Spends at a minimum cost to transport product to customer	3.2157	1.06824
Uses electronic system to track all product that are transported to facilities	2.9216	1.23229
Prepares adequately to avoid inventory shortages of drugs and PPE	3.5196	.97219
Timely deliveries from suppliers	3.5980	.96739

Source: Field survey, (2020)

More so, the findings relating to last mass distribution management construct indicated that the respondents somewhat agreed that the

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transportation management practices enable timely delivery of products and services to customers (M=3.2647: SD=0.98430), that the hospital has timely delivery of drugs and PPE (M=3.2353: SD=0.93530), that the hospital has effective distribution of drugs and PPE (M=3.3235: SD=1.04514), the hospital has long lead time (M=3.1863: SD=1.01211), the hospital has short lead time (M=3.1471: SD=1.04736) what's more, through transportation the board items are made accessible to the client want area (M=3.5588: SD=1.10421).

Again comparative discoveries were gotten in regard of the emergency clinic items and administrations are conveyed utilizing the correct method of transportation (M=3.6961: SD=0.97279), the emergency clinic spends at the very least expense to move item to client (M=3.2157: SD=1.06824), the emergency clinic utilizes electronic framework to follow all item that are shipped to the medical clinic (M=2.9216: SD=1.23229), The hospital prepares adequately to avoid inventory shortages of drugs and PPE (M=3.5196: SD=0.97219) and the hospital depends on timely deliveries from suppliers (M=3.5980: SD=0.9673).

These results are buttressed by the findings of Nguegan and Mafini (2017) and Yang et al. (2004). Nguegan and Mafini (2017) tracked down that a transportation framework that offers a solid assistance level diminish production network vulnerability and the sum stock needed all through the store network. Likewise, Yang et al. (2004) inferred that, inbound and outbound transportation execution as far as meeting conveyance plans and giving ideal answer to requests incredibly affects the organizations' capacity to accomplish item assortment, agreeably conveyance administration and in general execution.

Table 5: Hospital Supply Chain Performance

	Mean	Std. Deviation
Rate of patient complaints	3.2941	.82760
Speed in service delivery	3.7647	.73359
Hospital response to patients' requests	3.7451	.82877
Quick registration and admission process	3.9118	.84552
Inventory management cost	3.5392	.88633
Responsiveness to customer request	3.5294	.86409
Transportation cost	3.4314	.94931
Hospital- Supplier relationship rate	3.6373	.81798
Supply chain response time	3.4804	.86437
Warehousing cost/storage cost	3.3922	1.04509
Last mass distribution rate	3.4804	.90903

Source: Field survey, (2020)

The descriptive results relating to hospital supply chain performance show that the respondents agreed that there is frequent patient complaints (M=3.2941: SD=0.82760), speed in service delivery (M=3.7647: SD=.73359), hospital response to patients' requests (M=3.7451: SD=0.82877), quick registration and admission process (M=3.9118: SD=0.84552), inventory management cost (M=3.539: SD=0.88633), responsiveness to customer request (M=3.5294: SD=0.86409), transportation cost (M=3.4314: SD=.94931), Hospital- supplier relationship rate (M=3.6373: SD=0.81798), supply chain response time (M= 3.4804: SD=0.86437), warehousing cost/storage cost (M=3.3922: SD=1.04509), and last mass distribution rate (M=3.4804: SD= .90903).

The results are been supported by the findings of Ferrand et al. (2016) and Benton and Maloni (2005) and Aronsson, Abrahamsson and Spens (2011). Ferrand et al. (2016) and Benton and Maloni (2005) found that the influence of power-driven buyer seller relationships on supply chain satisfaction and the supplier relationship has a considerable positive impact on both Performance and feeling satisfied. Aronsson, Abrahamsson and Spens (2011) also revealed that the hospital is highly agile and can at the same time benefit from lean strategies as the patient's special condition.

Table 6: Patients Satisfaction

	Mean	Std. Deviation
The hospital is equipped with devices, technology and medical equipment	3.4608	1.01153
Internal organization helps achieve rapid response to patients	3.5882	.95806
The hospital makes reliable drugs available for patients	3.5490	.95053
The hospital has all necessary medicals available	3.2745	.95603
Courtesy and professionalism	3.9804	.84409
Drugs and equipment available	3.3824	.89048
Providing clear complete, and accurate information	3.7157	.87175
Feedback and complaints about drugs	3.2647	1.04291
Behaviour and mannerism of hospital staff	3.6569	.89548
Timeliness of feedback	3.4314	.99015
Fairness of pricing	3.7353	1.03337

Source: Field survey, (2020)

In addition, the findings relating to patient's satisfaction construct indicated that the respondents somewhat agreed that hospital is equipped with devices, technology and medical equipment (M=3.4698: SD=1.01153), that

internal organization helps achieve rapid response to patients (M=3.5882: SD=0.95806), that the hospital makes reliable drugs available for patients (M=3.5490: SD=0.95053), the hospital has all necessary medicals available (M=3.2745: SD=0.95603), courtesy and professionalism of hospital staff (M=3.9804: SD=0.84409), the hospital has available drugs and equipment for patients (M=3.3824: SD=0.89048), providing clear complete, and accurate information (M=3.7157: SD=0.87157), feedback and complaints about drugs (M=3.2647: SD=1.04291), behaviour and mannerism of hospital staff (M=3.6569: SD=0.89548), timeliness of feedback (M=3.4314: SD=0.99015) and fairness of pricing of drugs by the hospital staff (M=3.7353: SD=1.03337).

Works like Khudair (2011) and Javed have supported the results (2018). The patient satisfaction was positively affected by the speed, attitude of the pharmacist, counseling for medicinal products, pharmacy site and waiting area, Khudair (2011). Javed (2018) has also shown that the greatest cause of patient satisfaction is public sector empathy and responsiveness in the private sector.

Assessment of the PLS-SEM

The examination's exploration targets were dissected utilizing the Partial Least Square (PLS), underlying condition displaying method. Key basic suspicions or model characteristics such us thing loadings, marker unwavering quality (IR), develop dependability (CR), merged legitimacy (normal difference extricated), multicollinearity (VIF) and discriminant legitimacy were first surveyed to essentially got good legitimacy and unwavering quality of the investigation (Hair et al., 2014). Once more, these model outcomes were tried to make significance out of the primary model outcomes (Henseler et al., 2009: Ringle et al., 2011).
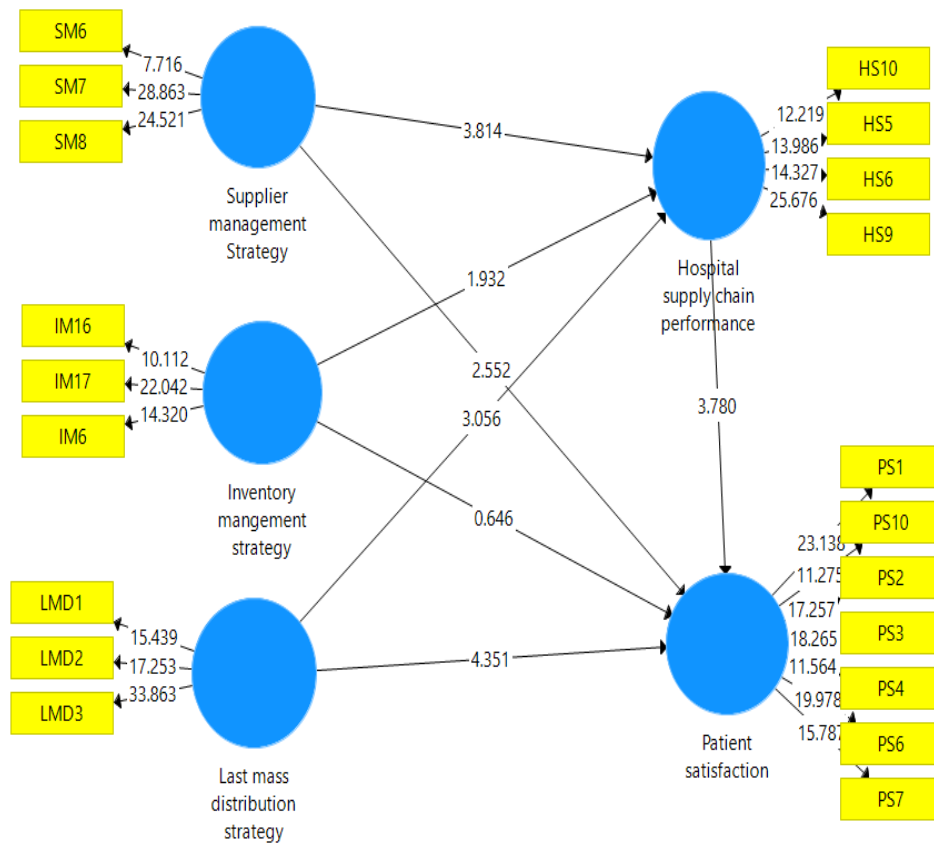
Figure 4: Structural Model
Source: Field survey, (2020)

From the decision rule, the minimum cut-off point of item loadings should be 0.70 as suggested by Henseler et al. (2009). From figure 4, its observed that, SM6, SM7, SM8, IM16, IM17, IM6, IM8, LMD1, LMD2, LMD3, HS10, HS5, HS6, HS9, PS1, PS10, PS2, PS3, PS4, PS6, and PS7 constructs met the minimum required cut-off point hence was maintained. However, SM1, SM2, SM3, SM4, SM5; SM9, IM1, IM2, IM3, IM4, IM5, IM7, IM9, IM10, IM11, IM12, IM13, IM14, IM15, IM18, IM19, LMD4, LMD5, LMD6, LMD7, LMD8, LMD9, LMD10, LMD11, HS1, HS3, HS7, HS8, HS10, HS11 PS5, PS8, PS9 and PS11 were removed from the model since their item loading did not meet the minimum cut-off point of the decision rule.

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Measurement of Model Assessment

Table 7 shows the results of model qualities consisting of internal consistency (IR), structural reliability, converging validity (average variance extracted).

Table 7: Assessment of Indicator and Construct Reliability and Validity

Items	Cronbach's Alpha	rho_A	Composite Reliability	Convergent variance	Inner VIF values (HS)	PS
HS	0.783	0.797	0.860	0.606		1.742
IM	0.715	0.733	0.838	0.633	1.563	1.632
LMD	0.814	0.826	0.889	0.728	1.327	1.460
PS	0.887	0.888	0.912	0.596		
SM	0.742	0.769	0.851	0.657	1.509	1.702

IR (CA and rho_A-Indicator reliability; CR-construct reliability; AVE - Convergent validity
Source: Field survey, (2020)

Internal Consistency and Reliability

The Table 7 introduced the pointer and develop unwavering quality of the investigation. Pointer dependability shows the bit of the difference of a marker that can be portrayed by its basic dormant variable (Hair et al.,2012). The general guideline for IR is that the edge of some random marker ought to be >0.70 (Chin, 2010; Hair et al., 2011; Latan and Ghozali, 2013; Wong, 2013). As per Vinzi, Trinchera Amato (2010), the edge esteem means that the fluctuation of the estimation mistake is not exactly the common difference between a develop and its pointer. All things considered; marker dependability IR is viable instrument for evaluating uni-dimensionality of a bunch of scale things. This was accomplished utilizing Cronbach alpha (α) and rho_A (ϑ) results.

From Table 7, the pointer dependability consequences of each inactive variable depend on the α which show the accompanying: SM (0.742); IM (α =0.715); LMD (α=0.814); HS (α =0.783) and PS (α =0.887) separately. The

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outcomes imply that every one of the idle factors limits >0.70 subsequently met the necessity rules and in this way showing that they are dependable for the model. Once more, different investigations have recommended the utilization of rho_A for evaluating pointer unwavering quality (Chin, 2010; Hair et al., 2014; Henseler, Hubona and Ray, 2016). This is on the grounds that, rho_A is a considerably more precise measure for marker unwavering quality. Jaw (2010) recommended that Joreskog;s rho_A (α) scores ought to be >0.70. The outcomes went from 0.750 to 0.898 demonstrating good and satisfactory outcomes. In particular, SM (ϑ=0.769); IM (ϑ=0.733); LMD (ϑ=0.826); HS (ϑ=0.797) and (ϑ=0.888) separately.

The Table 7 likewise introduced the consequences of the develop dependability of the examination. Bagozzi and Yi (1988) and Ringle et al. (2012) clarified develop unwavering quality (CR) evaluates the degree to which a particular build is enough estimated by its markers when assembled. This implies that, CR requires every one of the pointers allocated to an offered build to a solid common connection. The develop dependability results were acquired utilizing the composite unwavering quality as it's the proper for evaluating how very much relegated markers estimated a build (Bagozzi and Y, 1988). The dependable guideline is that the CR worth ought to be 0.70 or higher (Bagozzi and Y, 1988; Ringle et al. 2012). The outcomes showed that all the CR esteems were >0.70 with least equivalent to 0.851. This implies that every one of the allocated pointers had solid common associations with their individual builds.

Convergent Validity

The convergent validity CV of the study was also presented in Table 7. Measurement of convergent validity (CV) In Hair et al. PLS-SEM models, 2011

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is common with average variance extracted (AVE). The AVE clarifies how the variety of the marker is caught by a design comparative with the aggregate sum of fluctuation and difference because of the estimation blunder. Hair et al. (2011). The examination tried CV by inspecting the AVEs of the multitude of factors in the SEM model. An AVE with least limit of 0.5 for a build to show focalized legitimacy has been suggested by Fornell and Larcker (1981) and Hair estimated time of arrival l. (2011). The outcomes uncover that AVEs of the relative multitude of idle factors went from 0.592 to 0.664 consequently > 0.5; sign that the legitimacy of the estimation of scale was concurrent.

Multicollinearity among Exogenous Variables

The examination in like manner checked multicollinearity both the outside and the internal factor growing element (VIF) values. Hair et al. (2014) saw that multicollinearity diagnostics is assessed to ensure that the manner in which coefficients are freed from tendency while restricting the gigantic levels of collinearity among the pointer's creates. Pallant and Manuel (2007) zeroed in on that VIF regards > 10 showed multicollinearity among the free factors thusly affecting the headway of a good PLS-SEM model. Hair et al. (2014) suggested that the VIF potential gains of each create should be not by and large the cut of point of 5.0. From the variable the inward upsides of the exogenous were as per the following: SM (1.509); IM (i.563); LMD (1.327) individually. This showed the shortfall of the multicollinearity between the exogenous factors.

Table 8: Outer Multicollinearity among the Constructs

	VIF
HS2	1.398
HS5	1.495
HS6	1.619

HS9	1.607
IM16	1.596
IM17	1.416
IM6	1.591
IM8	1.542
LMD1	1.650
LMD2	2.328
LMD3	1.894
PS1	2.320
PS10	2.368
PS2	2.071
PS3	2.190
PS4	2.325
PS6	2.470
PS7	2.035
PS8	2.041
SM6	1.448
SM7	1.470
SM8	1.666

Source: Field survey, (2020)

Table 8 indicated that the external VIF model ranged from 1.000 to 2.470 for the corresponding indicators. These are clear indications that all VIFs are lower than the Hair et al point 5 cuts (2014). The result further indicates that the indicators measuring different exogenous variables have no multi-colored characteristics. Consequently, Ringle, Weade and Becker supported the results of the study (2015).

Discriminant Validity

The study also assessed the quality of the model by testing for discriminant validity as suggested by Hair et al. (2011). The discriminant validity was tested using Fornell and Larcker (1981) criterion and more recently the Heterotrait-Monotrait Ratio (HTMT) ratio. Fornell and Larcker (1981) for instance, explained that the discriminant validity ensures that study's latent variables are independent from one another. Discriminant legitimacy can be

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utilized to evaluate the underlying model for collinearity issues (Hair et l., 2014). The rule that their consider loads their separate developments ought to be higher than other connection esteems among the dormant factors for biased worth, utilizing the Fornell and Larcker (1981) standards (Fornell and Larcker, 1981; Chin, 2010). Table 9 showed the outcomes.

Table 9: Fornell-Larcker Criterion

	HS	IM	LMD	PS	SM
HS	0.778				
IM	0.505	0.795			
LMD	0.506	0.452	0.853		
PS	0.655	0.415	0.604	0.772	
SM	0.558	0.548	0.419	0.559	0.810

Note: Diagonal elements in bold =square root of AVE; Off-diagonal elements = correlation between constructs
Source: Fornell and Larcker (1981)

The discriminant legitimacy bring about table 9 shows that every one of the factorial loadings in their individual develops are higher than the wide range of various connection esteems among the dormant factors. This implies that there is uniqueness in the estimations of the builds. Henceforth the standard of thumbed proposed by Fornell and Larcker was met. Finally, the discriminant legitimacy was tried utilizing Heterotrait-Monotrait (HTMT) proportion. This is moderately new measure for assessing discriminant legitimacy in change dependent on underlying condition demonstrating (Rigdon et al 2014; Sarstedt, Ringle, Smith, Reams and Hair, 2014).

Sarstedt et al. (2014) proposed that the HTMT proportion has become commonly acknowledged standard for surveying connections among inert factors. Rather than already utilizing Fornell-Larcker over-burdens basis, they suggested the utilization of the HTMT proportion to assess discriminant legitimacy. This is on the grounds that, as contrasted and Fornell-Larcker model

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and cross-stacking, the HTMT proportion shows predominant execution in recognizing a shortfall of unfair legitimacy in like manner research situations. The consequence of the HTMT proportion was in this manner introduced in Table 10.

Table 10: Heterotrait-Monotriat (HTMT) Ratio

	HS	IM	LMD	PS	SM
HS					
IM	0.641				
LMD	0.608	0.585			
PS	0.779	0.513	0.697		
SM	0.694	0.766	0.530	0.674	

Source: Field survey, (2020)

The HTMT values (correlation of latent variables) should according to Wetzels & Odekerken-Schroder, (2009) be < 0.85 in order to achieve a discriminating validity. The table shows all the values below HTMT 0.85 for each of the building structures. This shows that each building is different from the other.

Significance of Path Coefficients

After assessing the measurement to ensure it meets the PLS-SEM criterion, the study continued with testing the four research hypotheses. The hypotheses specifically focused on examining the effects of supplier management (SM), inventory management (IM) and last mass distribution (LMD) on supply chain performance of hospitals which will leads patient's satisfaction in some selected hospitals in the Upper West Region of Ghana. The hypotheses have been assessed using the path coefficient (β) and the level of meaning of 5000 bootstraps proposed by Hair eta l to determine direction and

strength (2014). Table 11 presented the results of hypotheses tested with PLS-SEM.

Table 11: Results of Structural Equation Model and Hypothesis Testing

Structural path	B	t-test	p-values	Decision rule
SM -> HS	0.333	3.814	0.000	P<0.5 H1a (supported)
SM -> PS	0.238	2.552	0.011	P<0.5 H1b (supported)
IM -> HS	0.199	1.932	0.054	P>0.5H2a (not supported)
IM -> PS	-0.062	0.646	0.518	P>0.5H2b (not supported)
LMD -> HS	0.276	3.056	0.002	P<0.5 H3a (supported)
LMD -> PS	0.339	4.351	0.000	P<0.5 H3b (supported
HS -> PS	0.383	3.780	0.000	P<0.5 H4 (supported)

Note: *=p<0.05

Source: Field survey, (2020)

Supplier Management Strategy on Supply Chain Performance of Hospitals

Research objective one focused on the effect of supplier management on supply chain performance of hospitals. The study hypothesised $H1a_0$, and $H1b_0$ respectively that: supplier management analysis strategy does not have significance influence on supply chain performance and patient satisfaction of hospitals in Upper West. From table 11, the result revealed that supplier management strategy and patient satisfaction has a positive influence of supply chain performance of hospitals ($\beta=0.333$; t= 3.814; p< 0.05; β= 0.238; t= 2.552; p< 0.05). This is because, the t-statistics of the model was 3.814 and 2.552 respectively which were all more than 1.96.

As such, the direction of the results was in line with the hypothesis, thus the null hypothesis was rejected. Hence the hypothesis that supplier management strategy significantly influences supply chain performance of hospitals and patient satisfaction was supported. The Ãβ study showed that exogenous and endogenous variables have a positive relationship. This will lead to an increase of 33.3 and 23.8 percent in the supplier management

analysis unit in the supply chains percentage of hospitals and to the same margins for patient satisfaction (i.e. 33.3 percent and 23.8 percent). This implies that the supplier management strategy plays key role in ensuring effective supply chain risk management and patient satisfaction, invariably leading to an increase in supply chain performance and patient satisfaction of hospitals in Upper West.

The study's results have been supported by network theory. The network theory basically describes the cooperation of organisations with other actors between and among suppliers and customers within their supply chains. The theory posits that, partners can build strong relationship through effective communication, long-term mutual commitment, dynamism and development of relations and exchange of valuable resources own by them (Scott, 2011) and

Again, hospitals procurement and supply chain managers should also have alternative suppliers which will help avoid shortage of drugs because shortage of drugs could create more deaths in the hospitals. This means that, the hospitals under study can overcome their supply chain risk by adopting relevant strategies including supplier management strategy. This is because, the study found supplier management strategy to effectively manage supply chain risks and subsequently improves hospitals supply chain performance in terms of timely delivery of items, product quality, flexibility and cost reduction. In line with network theory, supplier management strategy could be implemented by the hospitals under studied to constantly address supply chain risk issues in hospitals.

The study's finding was supported by existing studies (Fox et al., 2009). A study conducted by Abdallah, Abdullah and Mahmoud Saleh (2017)

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examined supplier relationship management and competitive performance of manufacturing firms in USA, Japan, Italy, and Korea. It was found that supplier partnership positively affects competitive performance of these firms. Furthermore, empirical studies by Sheu, Yen and Chae (2006); Jamal, Ahmed and Al-Doori (2019) in Jordan Automotive industry has been proved that supply chain collaboration increased firm performance.

Inventory Management Strategy on Hospitals Supply Chain Performance and Patient Satisfaction

Research objective two also focused on the effect of inventory management on supply chain performance and patient's satisfaction of hospitals. The study hypothesised H_{2a} and H_{2b} that, inventory management analysis strategy does not have significance influence on supply chain performance of hospitals and patient's satisfaction in Upper West. From table11, the result revealed that inventory management strategy has no positive influence of supply chain performance and patient satisfaction of hospitals ($\beta=0.199$; $t=1.932$; $p >0.05$; $\beta=-0.062$ $t= 0.646$; $p >0.05$). This because, the t-statistics of the model was less than 1.96.

As such, the direction of the results was not in line with the hypothesis, thus the null hypothesis was supported. Hence the hypothesised that inventory management strategy has no significantly influences supply chain performance of hospitals patient satisfaction and was not supported. From the β, the study found a negative relationship between the exogenous and endogenous variables. This means that a unit increase in inventory management strategy by 19.9% and -0.062 will not lead to a unit increase in supply chain performance and patient satisfaction of hospitals. This implies that the inventory

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management strategy does not play key role in ensuring effective supply chain management which invariably will not lead to an increase in patient satisfaction.

The study's findings were not in line with network. The network theory posits that, partners can build strong relationship through effective communication, long-term mutual commitment, dynamism and development of relations and exchange of valuable resources own by them (Scott, 2011). This means that, the hospitals under studied cannot overcome supply chain risk by adopting inventory management strategy. This is because the study found this strategy does not been proper in managing supply chain risk and will not improves hospital supply chain performance in terms of cost reduction, flexibility and speed in service delivery.

The examination's discoveries was not upheld by existing investigations by Mbah, Obiezekwem and Okuoyibo (2019); Mbah, Obiezekwem and Okuoyibo (2019) analyzed the impact of stock administration on operational execution of assembling firms in South-East Nigeria and inferred that, there is a positive huge connection between; stock expense, without a moment to spare methodology, materials prerequisite arranging and vital provider association and operational execution of cited fabricating firms in the south-east area, Nigeria.

Last Mass Distribution Management Strategy on Supply Chain Performance of Hospitals and Patient Satisfaction

The examination target three additionally centered around the impact of Last mass dispersion the executives on production network execution of medical clinics. The investigation theorized H3b0 and H3b0 that, Last mass

circulation the executives examination methodology doesn't have importance effect on store network execution of clinics and patient fulfillment in Upper West. From table, the outcome uncovered that last mass dispersion the board system has a positive impact of production network execution of medical clinics and patient fulfillment (β=0.276; t= 3.056; p< 0.05, β=0.339; t= 4.351; p< 0.05). This is on the grounds that, the t-measurements of the model was 3.056, 4.351 separately which were more noteworthy than 1.96.

As such, the direction of the results was in line with the hypothesis thus the null hypothesis was rejected. Hence the hypothesis that lass mass distribution management strategy significantly influences supply chain performance and patient satisfaction. From the β, the examination tracked down a positive connection between the exogenous and endogenous factors. This implies that a unit expansion in last mass conveyance the board investigation by 27% and 33% individually will prompt a unit expansion in production network execution and patient fulfillment by similar edges (for example 27% and 33%). This implies that the last mass distribution management strategy plays key role in ensuring effective distribution of drugs, PPEs to the various hospitals under studied; invariably leading to an increase in supply chain performance and patient satisfaction in the upper west.

This could be established that, having effective last mass distribution network would enable the hospitals to have regular flow of drugs and PPEs in to the hospitals which will enhances further supply chain performance which would lead to patient satisfaction. This strategy would enable to ensure regular supply of drugs and PPEs even when there were shortages in the system which in turn help the hospitals to increase their flexibility and speed in healthcare

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delivery. As per the asset based view hypothesis, to make an upper hand, the assets of association should be significant, remarkable, incomparable and non-replaceable it consequently implies that these medical clinics under contemplated should ensure their machines that are one of a kind and practical that can all the more likely serve their last mass conveyance framework to improve their inventory network execution.

This finding was in accordance with past investigations by Yang et al. (2004) who inferred that, the effect of inbound and outbound transportation execution as far as meeting conveyance plans and giving ideal answer to requests and the association's capacity to accomplish item assortment, agreeably conveyance upgrades administration conveyance and generally speaking execution. Likewise, Ortiz-Catalan et al. (2016) led an investigation on the coordinations administrations and unsure interest for medical clinics in the State of California and inferred that coordinations administrations have solid impacts in nearby medical care frameworks' foundations in the event that they are feeble.

Hospitals Supply Chain Performance on Patient Satisfaction

Objective four focused on the effect of supply chain performance on patient's satisfaction. The study hypothesised $H4_0$ that, hospital supply chain performance analysis does not have significance influence on patient's satisfaction of patients in Upper West. From table 11, the result revealed that supply chain performance has a positive influence on patients' satisfaction thus ($\beta=0.383$; $t=3.780$; $p< 0.05$). This is because, the t-statistics of the model was 3.780 which is more than 1.96. As such, the direction of the results was in line with the hypothesis thus the null hypothesis was rejected. Hence the hypothesis that hospital supply chain performance has significantly influences on patient's

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satisfaction hence the hypothesis was supported. From the β, the investigation tracked down a positive connection between the exogenous and endogenous factors.

This implies that a unit expansion in inventory network execution of clinics examination by 38.3%% would prompt a unit expansion in store network execution of medical clinics by a similar edge (for example 38.3%%). This infers that the inventory network execution assumes key part in guaranteeing viable medical services conveyance framework. The examination again found that Hospitals with more stock of medications and PPEs constantly prompting an increment in persistent's fulfillment in the Upper West. The inventory network execution of emergency clinics assumes an imperative part in overseeing production network hazard in emergency clinics as it empowers emergency clinics to fulfill patients needs without deficiencies of medications and other PPEs. This could thus prompts expansion in quiet's fulfillment.

The examination's discoveries were in accordance with the asset based view hypothesis. The hypothesis places assets of supply chains incorporate the limit of the SCM, for example the utilization of last mass dissemination, data innovation, center around center capability. coordination capacities of SCMP and inventory network (Blome et. al, 2014). This means that the hospitals should employed highly skilled procurement professional to effectively manage their resources which will enhance their supply performance hence will help increase patient's satisfaction. The study's findings were also in line with existing studies by Clark, Leddy, Drain and Kaldenberg (2007) who found that Hospitals with more supply of Registered Nurses per population experience

higher patient satisfaction with nursing care, in contrast, patients in states with fewer registered Nurses are more dissatisfied with the quality of nursing care.

Explanation of Target Endogenous Variable Variance

The predictive accuracy PLS-SEM estimate for the model using the determination coefficient (R2) shown in this section. Further pertinent appraisals including impact size (f2), prescient significance (Q2) in light of the test standards of Stone-Giesser and the overall effect of the model (q2) have additionally been accounted for. These discoveries are appeared in Table 12.

Table 12: Explanation of Target Endogenous Variable Variance

LV	R^2	HSf^2	$^{PS}f^2$	Q^2	q^2
HS	0.426		0.192	0.346	0.042
IM		0.044	0.005	0.265	0.076
LMD		0.100	0.181	0.439	0.178
PS	0.563			0.454	0.201
SM		0.128	0.076	0.315	0.002

Note: L.V = latent variable, R2 =R square, f2 = effect size, Q2 =predictive relevance, q2 =relative impact of the model.
Source: Field survey, (2020)

Coefficient of Determination

This segment examined the prescient exactness of the model corresponding to the R^2 results. Hair et al. (2011) clarified that R^2 shows the joined impact of the exogenous factors (HS and PS) on the endogenous variable (PS). Likewise, R^2 clarifies the variety in the reliant variable which is brought about by the free factors (Cohen, 1988; Chuan, and Penyelidikan, 2006). Utilizing the Thalheimer and Cook (2002) and Henseler et al. (2009) basis, exogenous factors in the internal way with R^2 aftereffects of >0.67, 0.67 < p> 0.29 and < 0.29 suggest that the model is generous, moderate and powerless, individually.

The Table 12 showed that the coefficient of determination, R^2 for Hospital supply chain performance was 42.6% which variable was this means supplier management strategy, inventory management strategy and last mass distribution strategy moderately explains 42.6%of the Hospital supply chain performance. Finally, patient's satisfaction has coefficient determination R^2 of 0.563. This means that supply chain performance of hospitals moderately explained 56.3% of the variation in patient's satisfaction. Better still hospital supply chain performance cause 56.3% of change in patient's satisfaction level of these hospitals under studied in the Upper West Region of Ghana. It, therefore, could argued that these hospitals under studied should pay serious attention to managing supply chain risk which could lead to effective supply chain performance hence will influence patient's satisfaction as they account for 56.3% of change in patient's satisfaction.

Effect Size (f2)

In Cohen's (1988) sway pointer basis, values for 0.35 (huge), 0.15 (medium) and 0.02 (little) individually were surveyed regarding impact size (f2) for each exogenous variable. Table uncovered that SM with HSf2 and PSf2 of 0.128 and 0.076, infers that it mediumly affects inventory network execution and patient fulfillment separately. Then again, IM and LMD of HSf2 and PSf2 of were found to have medium and little impact on store network execution and patient fulfillment individually. This is on the grounds that, the impact sizes (HSf2 and PSf2) IM and LMD were 0.044, 0.005 and 0.100, 0.81 separately.

Also, Supply chain performance of hospitals revealed that HS with f2 of 0.192 it implies that it has a large effect on patients' satisfaction. The results imply that, when these strategies are implemented, last mass distribution

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strategy has a relatively higher effect on supply chain performance, this is follow by SM and IM respectively. Again, effective supply chain performance of hospitals has greater and extreme effect on satisfaction this is because, it's an indicator that it has criterion value of 0.192 which is lesser than 0.35 values which Cohen's described as medium.

Predictive Relevance (Q^2)

Prescient significance of indicator exogenous inert factors was evaluated utilizing Stone-Geisser,s Q^2 test (Roldan &Sanchez-Fransco, (2012). As indicated by Hair et al. (2014), prescient importance (Q^2) is surveyed by excluding part of the information grid, assessing the model and anticipating the overlooked parts utilizing the evaluations. The general guideline is that, (Q^2) esteem > 0 for an exogenous variable (Henseler et al., 2009; Chin, 2010).

Henseler et al. (2009) proposed that 0.02 equivalent to or under Q^2 < 0.15 (frail impact), 0.15 equivalent to or under 0.35 (moderate impact) and Q^2 > 0.35 (solid impact). Rigdon (2014) and Sarstedt et al. (2014) contended that despite the fact that contrasting the Q^2 esteem with zero demonstrates that the exogenous variable can be anticipated, it doesn't show the nature of the expectation.

From the table 12, it very well may be reasoned that all exogenous factors had the option to decently anticipate the model. This is on the grounds that, the Q^2 of the exogenous factors were as per the following: SM (0.315), IM (0.265), LMD (0.439), HS (0.346) and PS (0.454) separately. SM, IM and HS Q^2 values $Q^2 < 0.35$ hence indicating moderate predictive relevance except LMD and PS, $Q^2 > 0.35$ thus indicating strong predictive relevance.

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Predictive Relevance (q^2)

The nature of the prescient pertinence of each endogenous develop for a particular endogenous build was likewise evaluated. This was finished by utilizing equation: q^2 = (Q^2 included - Q^2 rejected)/(1-Q^2 included). The choice standard is that q^2 upsides of 0.35 address huge, 0.15 address medium and 0.02 addresses little sizes impact separately (Henseler et al., 2009). In view of this, all the q^2 values (SM =0.002; IM =0.076; LMD =0.178; HS =0.042; PS=0.20) LMD and PS separately q^2 <0.015 subsequently portraying moderate impact sizes, SM, IM and HS q^2 values were underneath 0.015 portraying little impact sizes.

It implies the impact sizes of the different underlying ways in the model were moderate. The aftereffect of the prescient (q) implies that, the model is for the most part great of the free factors (SM, IM and LMD) can clarify the reliant factors production network execution and patients' fulfillment. As per Henseler et al. (2009), q^2 upsides of the in subordinate factors > 0 to demonstrate prescient pertinence of the model.

Chapter Summary

This section introduced the outcomes and conversations of the examination's speculations utilizing PLS-SEM. The investigation discovered provider the executives, Inventory the board, Last mass dissemination the board fundamentally influence production network execution of clinics, and powerful store network execution of clinics additionally has critical impact on tolerant's fulfillment of the emergency clinics under considered. The discoveries infer that these systems assume vital parts in overseeing production

network hazard. The following section zeroed in on the outline, ends and proposals.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This part presents the outline of the exploration goals of the examination, ends drawn from the discoveries and suggestions for strategy contemplations. The section finishes up with ideas for additional examination.

Summary

This investigation was guided by theoretical contentions comparable to the critical commitments of store network hazard the executives techniques on the presentation of medical clinics in Upper West Region. The reason for the examination was to analyze the impact of clinical stockpile the board and medical services execution of some chose clinics in the Upper West Region of Ghana. In particular, the examination tried to:

1. assess the effect of supplier management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

2. analyse the effect of inventory management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

3. assess the effect of last mass distribution management strategy on hospital supply chain performance and patient satisfaction in the Upper West Region;

4. examine the influence of hospital supply chain performance on patient satisfaction in the Upper West Region.

The investigation created and tried four goals to help accomplish the exploration principle destinations. The examination received the positivism theory along these lines depending on the quantitative methodology and logical exploration plan. An organized poll was created from audits of past examinations to accumulate information from 12 clinics in the Upper West Region to be specific Daffiama Bussie Issa (DBI), Jirapa, Lambussie, Lawra, Nadowli – Kaleo, Nandom, Sissala East, Sissala West, Wa East, Wa Municipal, Wa West and Wa Regional Hospital in Upper West. The statistics procedure was utilized on account of the emergency clinic staff, and basic arbitrary testing method on account of patients. Upon the organization of the poll, 100% and 73% reaction rates were created for wellbeing staff and patients individually. The information was then prepared utilizing the IBM SPSS (adaptation 25) and Smart PLS (form 3) programming. Both enlightening and inferential measurements were utilized to address the issues in the examination.

All the more critically, frequencies and rates used to examined information on the emergency clinics, and individual qualities of the respondents. Additionally, the store network hazard the executives profile of the emergency clinics was investigated utilizing these apparatuses. Then again, the inventory network the executives techniques were portrayed utilizing the methods and standard deviations. Regarding testing the examination's theory halfway least squares primary equational displaying procedure was utilized. The examination expected that the t-insights ought to be more noteworthy than 1.96, accordingly its p-esteem < 0.05. This part at last introduced the significant discoveries of the investigation corresponding to the exploration theory.

Concerning first examination evenhanded, the investigation found that provider the board methodology has positive critical impact on the emergency clinic inventory network execution and patient fulfillment inside chose clinics in Upper West Region. This implies that the technique assumes critical parts in improving execution levels of the clinics considered. The outcomes infer that a greater amount of these systems are received by the clinics concentrated in dealing with their inventory network hazard, which prompts higher inventory network exhibitions and perpetually would prompt patient fulfillment.

The second examination target zeroed in on dissecting the impact of stock administration technique on medical clinic store network execution and patient fulfillment inside the chose medical clinics in Upper West district. The examination tracked down no huge impact of stock administration on medical clinics store network execution and patients' fulfillment of the emergency clinics under considered. This infers that a unit expansion in the procedure doesn't prompt any critical expansion in clinics production network execution and patient fulfillment. Hence, the system doesn't assume any huge part when the medical clinics mean to improve their clinic inventory network execution and patient fulfillment.

The third target surveyed the impact of last mass appropriation the executives system on clinic production network execution and patient fulfillment of some chose emergency clinics in the Upper West Region. The examination tracked down that last mass circulation the executives system has huge beneficial outcome on medical clinic store network execution and patient fulfillment of the emergency clinics under contemplated. It suggests that, a unit

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expansion in the technique does prompts critical expansion in the medical clinics store network execution and patient fulfillment.

Thus, the strategy plays significant roles in improving hospitals supply chain performance and patient satisfaction. Since last mass distribution management is the only mode of transportation system for Upper West Region hospitals hence, they largely depend on last distribution management strategy to distributes their drugs and personal protective equipment to the various hospitals.

In relation to the fourth objectives, the influence of hospital supply chain performance on patient satisfaction within the hospitals in the Upper West Region of Ghana was examined. It was found out that effective supply chain performance has significant effects on patient satisfaction. It does allow frequent flow of drugs, equipment, among others to the various hospitals leads to significant positive effect on the patient's satisfaction. This again imply that effective supply chain performance improves the performance of the hospitals studied. This means that proactive supplier management strategy, effective inventory management, and reliable and efficient last mass distribution management strategy leads to overall improvement in hospital supply chain performance which eventually leads to patient satisfaction.

Conclusions

The examination focused on clinical inventory the executives and medical care execution of some chose clinics in the Upper West Region of Ghana. The accompanying ends were, along these lines, drawn dependent on the investigation's key discoveries. With the examination target one, the investigation's outcomes essentially suggest that, management of hospitals in

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the Upper West Region should seriously consider the supplier management strategy as is the best strategy for managing their supply chain risk. This is achieved through building strong collaboration and strategic supplier partnership which would help increase regular free flow of quality drugs and PPEs in the hospitals.

The objective results had the highest significant value and also had been largely supported by previous empirical studies. This indicates that hospitals adopting supplier management strategy to get regular flow of raw materials, drugs and PPEs will improves performance levels. The study concluded that management should develop deeper understanding and knowledge of supplier management strategy to overcome possible delay of supplies from their supplying companies.

Furthermore, with the second study objective inventory management strategy was found no significant effect on supply chain performance and patient satisfaction of the hospitals studied. The result had implications for management of hospitals in the Upper West Region. The results imply that, management should avoid the misconception that the inventory management strategy can be considered among the best strategies in every hospital. This is because some contextual factors including the nature of inventory and organizational culture could hinder the adoption of inventory management strategy. Thus, management could consider various factors prior to the implementation of inventory management strategy. On this note, the study concluded that hospitals that emphasis on the inventory management strategy would struggle enjoy any significant improvement in the performance of hospital supply chain and patient satisfaction.

The third objective was on last mass distribution management strategy and was found to have positive significant effect on the hospital supply chain performance and patient satisfaction of the studied area. This result also has practical implication for hospitals. The study practically implies that management should implement last mass distribution management strategy to continue to improve regular flow of drugs into the hospitals. Hospitals survival largely depends on drugs and PPEs so there is the need to strengthen their distribution system to make drugs and other equipment available to hospitals at all the time to prevent shortage of drugs in these hospitals.

Finally, the study findings on research objective four showed a positive significant effect of effective hospitals supply chain performance on patient satisfaction within hospitals in the Upper West Region of Ghana. The practical implication is that, efficient supply chain performance should be viewed by management of the hospitals as something they should continue to implement by making sure that supplier management strategy, inventory management strategy and last mass distribution management strategy leads to efficient supply chain performance. Hence, hospitals should try as much as possible to improve supply chain performance which invariably would lead to patient satisfaction. The study, therefore, concludes that the management should implement the above strategies with all seriousness which would allow the hospitals to have efficient supply chain performance which would translate into regular flow of drugs into the hospitals thereby leading to patients' satisfaction.

In summary, the study, concluded that medical supply management strategies except inventory management strategy generally have positive influence on healthcare supply chain performance levels of hospitals and patient

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satisfaction. Hospital supply chain performance also have positive influence on patients' satisfaction within the studied area in Upper West Region. More precisely, strategies such as supplier management strategy and last mass distribution management strategy all had significant positive effect on healthcare supply chain performance which also has positive influence on patient satisfaction.

Recommendations

Based on these research findings and conclusions, the following recommendations are hereby made for hospitals management to consider implementing. The study recommended that hospitals management should pay more attention to supplier management strategy during supplier management. Hospitals should invest software that is capable linking all actors in the supply chain to share information, effective communication and establish long term relationship among the actors in the supply chain, by so doing, trust, loyalty and commitment would be strongly built between these hospitals to suppliers with high level of professionalism efficiency and effectiveness. These would in turn better supply chain performance and invariably improve patient satisfaction in the upper west region.

Also, the study recommended that management of Upper West Hospitals should pay less attention to inventory management strategy because it was found to have no influence on hospitals supply chain performance and patient satisfaction levels. Management should, therefore, adopt and invest on strategies other than inventory management strategy. This is because, continuous investment in this strategy would only increase operational cost without consequently improving supply chain performance and patient

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satisfaction in terms of quality, speed flexibility and dependability of the hospitals operational systems.

The study further recommended that management of the various hospitals in the Upper West Region should implement and invest on last mass distribution strategy. Last mass distribution management strategy is virtually the most significant supporting discipline of a hospitals; hence management must ensure that items get to the respective wards and departments of their various hospital through last mass distribution. This can be done by implementing efficient planning, administration and optimization of flows of drugs and personal protective equipment (PPEs). All healthcare and medical processes must be supported in the best possible way by efficient hospital logistics, thus ensuring optimal patient treatment and safety.

Lastly, the study recommended that management of the hospitals continue to have effective and efficient hospitals supply chain performance by implement supplier management strategy and last mass distribution management strategy this would help hospitals to continue to have resilient supply chain performance of hospitals which will invariably leads to patient satisfaction. More prissily, hospitals should invest massively into acquiring software and efficient vans that can improve supply chain performance and which would lead to patient satisfaction.

Suggestions for Further Research

The examination zeroed in on what clinical inventory the executives procedures mean for medical care execution of some chose clinics in the Upper West Region of Ghana. In this manner, further examination could be stretched out to cover different locales in Ghana or to cover different nations, particularly

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those in the creating economies. This would help extend existing information help speculation of discoveries. The investigation was likewise restricted to just emergency clinics store network execution and patient's fulfillment. Further exploration can, along these lines, be done to inspect the store network connection between private dispersions of drug items and wellbeing offices.

This will would expand existing knowledge on how medical supply management strategies can help efficient distribution of pharmaceutical products to these health facilities. Again, further research can look at only medical supply management of drugs and how it affects healthcare performance, this would help researchers and policy makers to have deeper understanding of medical supply management of drugs supply chain.
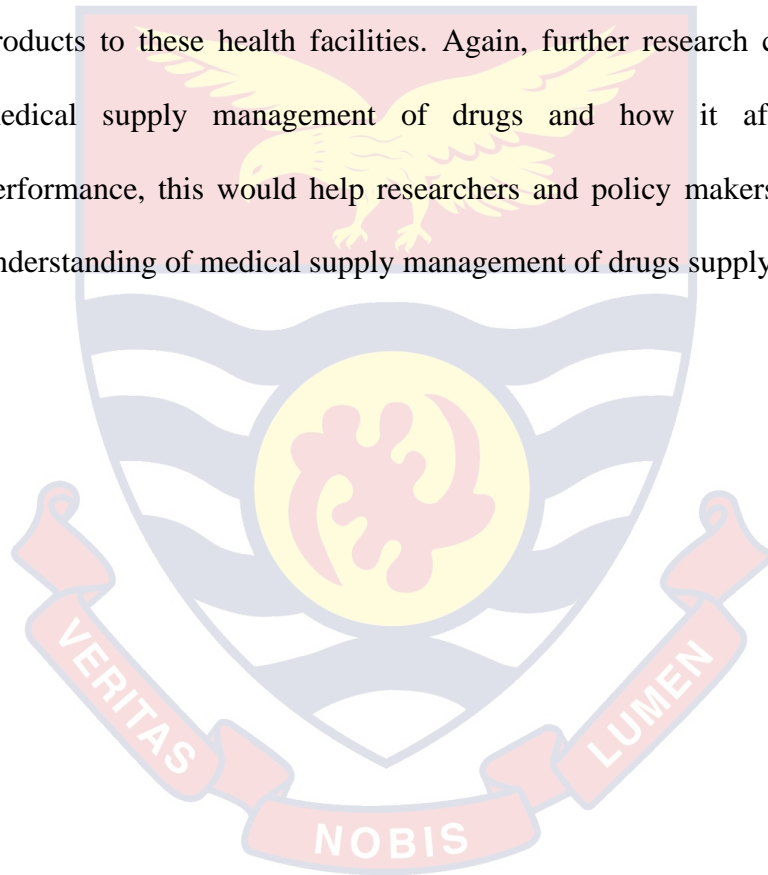
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APPENDIX

**UNIVERSITY OF CAPE COAST COLLEGE OF
HUMANITIES AND LEGAL STUDIES
DEPARTMENT OF MARKETING AND SUPPLY CHAIN
MANAGEMENT
RESEARCH QUESTIONNAIRE**

Dear Sir/Madam

I am a Master student from the Department of Marketing and Supply Chain

Management. As part of the requirements for a partial fulfilment of my Master's

degree, I am conducting a research entitled; **'**Supply Chain Risk Management

and Performance of some Selected Hospitals in the Upper-West Region of

Ghana'. Anonymity and confidentiality of your response is guaranteed. I really

appreciate your time and energy spent on this questionnaire.

SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENTS

1. Sex   a. Male [ ] b. Female [ ]

2. Age bracket

     18-35 years [ ]   36-45 years [ ]

     46-55 years [ ]   Over 55 years [ ]

3. Indicate your highest level of education

     No formal education [ ]   Below HND   [ ]

     HND/Equivalent [ ]   First Degree   [ ]

     Post Graduate degree [ ]

4. How many years have you been working in this Hospital?

     Less than 5 years [ ]   5-10 years [ ]

     11-15 years   [ ]   More than 15 years [ ]

5. Ownership status of affiliated hospital

     Public hospital [ ]   Private hospital [   ]

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SECTION B: SUPPLY CHAIN RISK MANAGEMENT STRATEGIES AMONG HOSPITALS

Rate, by ticking, the state of effectiveness of these supply chain risk mitigation strategies in this hospital

1=Ineffective; 2= slightly effective; 3= moderately effective; 4= Effective 5=highly effective

No	Inventory management	1	2	3	4	5
1	The hospital uses external and internal medicines to select health commodities					
2	The hospital establish maximum, minimum and reorder levels for hospital commodities					
3	The hospital engages in stock taking					
4	The hospital uses past consumption to determine quantity of health commodity needed					
5	The hospital use request from users to determine the quantity of health commodity needed					
6	The hospital plan in advance					
7	The firm uses enterprise resource planning system (Barcode) to track its inventory					
8	All the hospital inventory items have been classified according to their order of importance					
9	The hospital adopts a classical economic order quantity model.					
10	The hospital observes periodical replenishment of stocks					
11	The hospital maintains a minimum stock level					
12	The hospital uses JIT stock control system					
13	The hospital uses the JIT system to eliminate waste					

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14	The inventory management practices enable the hospital to avoid inventory bottleneck in production					
15	The hospital receives drugs and PPE at schedule delivery time.					
16	The hospital practices vender managed inventory systems.					
17	The hospital uses automatic stock tracking					
18	The hospital exercises selective control over its inventory items					
19	The hospital collaborates with its suppliers in system upgrade					
	Supplier management					
1	The hospital deal with alternative suppliers					
2	The hospital pursues supplier collaboration					
3	The hospital builds strong strategic alliance with suppliers.					
4	The hospital has good communication with its suppliers					
5	There is complete information sharing between the hospital and its suppliers					
6	The hospital provides incentives to suppliers as source of motivation					
7	The hospital regularly monitors our suppliers for possible supply chain risk.					
8	There are frequent meetings between the hospital inventory staff and its suppliers					
9	The hospital ensures early supplier involvement in all inventory-related.					
	Last mass distribution management					
1	The transportation management practices enable timely delivery of products and services to customers					

2	The hospital has timely delivery of drugs and PPE						
3	The hospital has effective distribution of drugs and PPE						
4	The hospital has long lead time						
5	The hospital has short lead time						
6	Through transportation management products are made available to the customer desire location						
7	The hospital products and services are delivered using the right mode of transportation						
8	The hospital spends at a minimum cost to transport product to customer						
9	The hospital uses electronic system to track all product that are transported to the hospital						
10	The hospital prepares adequately to avoid inventory shortages of drugs and PPE						
11	The hospital depends on timely deliveries from suppliers						

SECTION C: SUPPLY CHAIN PERFORMANCE OF HOSPITALS

To what extent has the implementation of supply chain risk management strategies improve healthcare supply chain performance of this hospital?

1=No improvement; 2=slightly improvement; 3=Moderate improvement; 4=high improvement; 5=Very high improvement

No	Hospital supply chain performance	1	2	3	4	5
1.	Rate of patient complaints					
2.	Speed in service delivery					
3.	Hospital response to patients' requests					

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4.	Quick registration and admission process					
5.	Inventory management cost					
6.	Responsiveness to customer request					
7.	Transportation cost					
8.	Hospital- Supplier relationship rate					
9.	Supply chain response time					
10.	Warehousing cost/storage cost					
11.	Last mass distribution rate					

SECTION D: PATIENTS SATISFACTION

To what extent has the implementation of healthcare supply chain improves patient satisfaction of this hospital?

1=No improvement; 2=slightly improvement; 3=Moderate improvement; 4=high improvement; 5=Very high improvement

NO	Patients Satisfaction	1	2	3	4	5
1.	The hospital is equipped with devices, technology and medical equipment					
2.	Internal organization helps achieve rapid response to patients					
3.	The hospital makes reliable drugs available for patients					
4.	The hospital has all necessary medicals available					
5.	Courtesy and professionalism of hospital staff					
6.	The hospital has available drugs and equipment for patients					
7.	Providing clear complete, and accurate information					

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8.	Feedback and complaints about drugs					
9.	Behaviour and mannerism of hospital staff					
10.	Timeliness of feedback					
11.	Fairness of pricing of drugs by the hospital staff					

Thank You