Available online at: https://journals.researchsynergypress.com/index.php/lomr
Logistic and Operation Management Research (LOMR)
e-ISSN 2830-2680/p-ISSN 2830-3334
Volume 1 Number 1 (2022): 16-33

Inventory Management Practices and Service Delivery of Healthcare Facilities in Ilocos Norte Philippines

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Abstract

The study investigates the relationship between inventory management practices and service delivery. The study participants were the 16 healthcare facilities in Ilocos Norte and 80 patients, and they were chosen using a convenience sampling technique. The research used a quantitative research design and a casual research approach to measure the degree of relationship between the independent and dependent variables. Based on the findings of the study, there were five inventory management practices observed for the study—pharmacy premises and storage, drug information, safety and security, personnel and stock control, and monitoring. On the other hand, as service quality, hospitals have four categories. These are hospital admissions, care and treatment, hospital environment and facilities, and hospital discharge. Personnel and stock control and monitoring are significantly correlated to service quality Implications, conclusions, and recommendations were also provided in the study.

Keywords: inventory, inventory management, service delivery

INTRODUCTION

A successfully practiced inventory management system considers purchasing products in a relationship with demand, seasonal variation, varying usage patterns, and pilferage monitoring (Samanta,2015). Inventory management is a crucial management dilemma for various companies. Inventories are essential to the successful functioning of companies, especially manufacturing organizations. It is a critical function of any supply chain system because it could enormously affect its current processes. There are several reasons for maintaining inventory. Heavy stock could result in capital being knotted down, so much in holding cost, worsening of materials, desuetude, and theft (Mukopi and Iravo, 2015).

Moreover, the decline of materials can stop goods for sales, below-par customer services, and underutilized machines and equipment. Inventory management is a crucial function to help protect the accomplishment of organizations, even hospitals. Inventory management programs' efficacy is directly assessable by how efficacious an organization delivers high consumer service levels, low inventory investment, total throughput, and decreased costs (Samanta,2015). The proper inventory management test backs an upward inclination in sales while preserving the funds at the lowest level coherent with satisfactory customer service. Management of inventory, which usually signifies 45% to 90% of all costs for business, is essential to ensure that the firm has the right products on hand

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https://doi.org/10.31098/lomr.v1i1.919

to evade stock-outs and preclude shrinkage (spoilage/theft), and give appropriate accounting (Khan, 2003).

Hospitals, infirmaries, clinics, and other healthcare facilities are not freed from the ought of having an effective inventory management system because, without sufficient stock, health services to patients will come to a cease (Coyle et al., 2003). According to Kumar et al. (2008), this is the leading cause of why inventory management plays a crucial role in healthcare service delivery. Disappointment by the function to defend and preserve supplies' obtainability can disrupt the company's very concern, which the process is supposed to sustain. According to Gudum (2002), as cited by Mensah (2015), some inventory management function problems are the vagueness and inconsistency of the timing and substance of information flow and goods flow. The outcome is unsure about planning, increased expenses, stock-outs, and delays.

Another dilemma of inventory management in hospitals is the scarcity of medicines, which is sporadically credited to the lengthy procurement process, the occasional decline of vital drugs in the market, lack of enough investments with which to procure new supplies, the reluctance of suppliers to supply infirmaries due to late payments, insufficiently trained personnel in the inventory management section, and the inadequacies of the hospital's stock management system (Oballah et al., 2015). Therefore, there is the need to take measures, especially on inventory, to deal with uncertainties and dynamics on the business's operational level. However, for this to be effective, there is a need for strategies applied at the tactical and strategic levels of organizations to steer their supply chain strategy to achieve competitive strategy and good performance.

With the ever-mounting outlay in the healthcare services sector, there is a need to control these problems while safeguarding those accessible resources are used to offer vital medications to the ever snowballing population. This demands the effective and efficient inventory management of the hospital inventory stocks by keeping rigorous guardianship and priority setting in the purchase and distribution of vital medical and non-medical inventory items (Gudum, 2002)

This research explores the hospitals and clinics' effect on inventory management practices in Ilocos Norte on its business performance, specifically on service delivery. Hospitals and clinics are also business organizations that need financial stability to survive and grow. It is also vital to safeguard their expenses and maximize their profits and gains.

LITERATURE REVIEW

The Concept of Inventory and Inventory Management

Inventory is described as a stock or store of products (Stock et al., 2001). Inventories are "supplies of raw materials, supplies, components, work in process, and finished goods that look at various points throughout an organization's production and logistics channel." It is the stock of items or resources used in a company. These products are upheld on hand at or near a business's location so that the company may meet demand and achieve its reason for existence (Ballou, 2009). Inventories are assets detained for sale in the ordinary course of business, in the production process for such trade, or in the form of materials or supplies to be ingested in the production process or the rendering of services (Ahmed, 2016). Inventories constitute significant portions of the current assets of any organization. It plays a vital role in keeping organizational activities

running effectively. No operation can occur without proper and adequate inventory on the ground (Kotler et al., 2012).

Inventory management is the effective and efficient use of material and stock in the organization to maximize performance. Efficient inventory management is essential in the operation of any business. It is the supervision of the storage, supply, and accessibility of items to ensure an adequate supply without excessive oversupply. It means the availability of materials whenever and wherever required by stocking a decent number and kinds of stocks (Ogbo, 2014). Every inventory policy aims to have enough and sustained quantities of excellent quality items accessible to furnish customer needs and reduce inventory carrying costs (Brigham and Ehrhad, 2005). Stock must be well managed to maximize profits since "much small business could not absorb the types of deficits arising from poor inventory management" (Hedrick et al., 2008).

Effects of Inventory Management practices on business performance

In a study by Okoro (2016), it was revealed that inventory control affects selected manufacturing firms' productivity. Specifically, there is a positive relationship between demand management and customer satisfaction. Lastly, just-in-time has a significant effect on the growth of these manufacturing firms. Edwin and Florence (2015) studied the cement industry in Kenya, given its economic contributions. This study was essential to assess the impact of inventory management on the profitability of the industry. The variables utilized are inventory turnover, inventory conversion period, Inventory levels, storage cost, firm size, gross profit margin, return on assets, and the firm's growth. The study's output showed a negative relationship between inventory turnover, inventory conversion period, and storage cost with profitability. Also, Anichebe et al. (2013) studied that even though the firms learned portrayed the picture that they were using the principles of proper inventory management, they, from time to time, run into the dilemma of inventory inadequacy. This consequently impacted their manufacturing, leading to the shortage of one brand of their products, thereby negatively influencing their profitability and resulting effectiveness. The study revealed that there is a significant relationship between good inventory management and firm effectiveness. Moreover, Koin et al. (2014) revealed in their research that inventory management affects the firm's performance. The results showed that the inventory management system and supplier relation impact the supply chain effectiveness in the manufacturing industry considerably. In contrast, order management and warehouse management impacts it to a moderate degree. This research proves the usefulness of the proposed method. Using this study, legitimate answers for coordination of inventory management and procurement tasks shall be availed to the decision think tank of the organization. Another research by Eckert (2007) inspected inventory management and its effect on refining customer satisfaction. He found a positive association between customer satisfaction and supplier partnerships, education and training of employees, and technology.

Contrary to these studies is the research by Roumiantsev and Netessine (2005). They explored the relationship between inventory management strategies and the financial performance of companies. They found out that there is no association between inventory management and financial performance as measured by return on assets. Finally, In Greece, Koumanakos (2008)

examined the impact of inventory management on organizations' performance. There are 1358 manufacturing companies, mainly in the food textiles and chemicals observed. The results implied that the greater the firm's inventory level (departing from lean operations), the reduced the rate of return.

Statement of the Problem

This research study aimed to evaluate the effect of inventory management practices on the business performance of licensed hospitals in Ilocos Norte. Specifically, it seeks to provide answers to the following questions:

1. What is the level of implementation of inventory management practices done by healthcare facilities in Ilocos Norte in terms of:
    a) Pharmacy premises and storage;
    b) Drug information;
    c) Safety and security;
    d) Personnel (Purchasing Department); and
    e) Stock control and monitoring?
2. What is the level of service delivery of healthcare facilities in Ilocos Norte in terms of:
    a) Hospital admission;
    b) Care and treatment;
    c) Hospital environment and facilities; and
    d) Hospital discharge?
3. Is there a significant relationship between the level of inventory management practices and service delivery of hospitals in Ilocos Norte?

Figure 1. Research Paradigm

Figure 1 explains the research framework of the study. The independent variable is the inventory management practices of healthcare facilities, whereas the dependent variable is the service delivery. Moreover, the mediator is the classification of healthcare facilities.

Hypotheses Development

Hypothesis. There is a positive relationship between inventory management practices and service delivery.

The research by Mensah (2015) suggested that the healthcare facilities ensure deals with suppliers for fast cycle deliveries, guarantee precise prediction of supplier delivery dates and operate the

Materials Requirements Planning system (MRP). The patients were satisfied with the hospital's reliability of healthcare service (24-hour service and a full complement of medical staff), completeness of healthcare service, the empathy of healthcare staff and affordability of healthcare service, and physical appearance of healthcare service (facilities and other tangibles). Another study was conducted by Ogonu et al. (2016), which investigated the linkage between the determinants of inventory Management and customer satisfaction within supermarkets in Nigeria. Results have shown that Lean Inventory Management System emerged as the most significant positive impact on customer satisfaction. In contrast, information technology was found to have a strong positive effect on customer loyalty. Strategic supplier partnership was found to be a weak factor determining customer loyalty. Rogic (2016) examined the impact of inventory management on service delivery in public health facilities. The results revealed that the challenges faced by Kidera health Centre as far as inventory management is concerned are the high maintenance costs and theft and pilferage. The organization has also got limited personnel with the required competence in managing Materials Requirements Planning (MRP) software, limiting the applicability of the inventory management systems.

The primary basis of this study was the study of Ruiz (2018). The researcher used multiple regression analysis as the primary statistical tool to analyze if there is a significant relationship between the given constructs of the inventory management practices and the service delivery of healthcare facilities. In conclusion, the constructs that have significant association were stock control and monitoring and care and treatment.

METHODOLOGY

Participants

The study respondents were selected using a convenience sampling technique. They are the hospital owners/operations managers/inventory supervisors, and patients of these hospitals to validate the personnel's responses. Of hospitals in Ilocos Norte. There are 16 respondent-healthcare facilities identified, which are all located in Ilocos Norte. These are Bangui District Hospital, Governor Roque R. Ablan Sr. Memorial Hospital, St. Camillus Hospital, Marcos District Hospital, Dingras District Hospital, Piddig District Hospital, Black Nazarene, Gertes Hospital, Laoag City General Hospital, Gaoat General Hospital, and Karmelli Hospital, Ranada General Hospital, Sta. Teresita Hospital and Laoag Pediatric and Lying-In Hospital, and Mariano Marcos Memorial Hospital and Medical Clinic. And as for the service delivery, 5 patients for each hospital were surveyed. The questionnaires' distribution was done in December 2020, and the instruments were retrieved in February 2021.

Research Instrument

The research instrument that was used in the research is questionnaires. The questionnaire for the hospital administrator there is three parts to the questionnaire. The first part was the demographic profile, the second part was the organizational profile, and the last part was the inventory management practices of these hospitals. The demographic profile refers to age, gender, monthly

income, and position. The corporate profile consisted of years of operations, no. of employees, average monthly income, average monthly expenses, and bed capacity.

On the other hand, the inventory management practices were measured using the constructs developed by Anna Ruiz, a Masters of Science in Management graduate. This questionnaire was adopted for her study entitled "The effect of Inventory Management Practices in the Service Delivery of Licensed Level 1 Hospitals in Metro Manila". These constructs were measured using a 4-point Likert scale where 1 means no extent and four to a great time.

The second questionnaire is for the patients of the different healthcare facilities. It consisted of two parts. The first part was the demographic profile of patients and the second part was the evaluation of hospitals' service delivery, also adopted in Ruiz's paper (2018).

Table 1. Reliability Results

Scale Reliability Statistics

	Cronbach's α
scale	0.873

Table 1 revealed that the Cronbach Alpha of the questionnaire is .873, which is interpreted as respectable. The acceptable Cronbach alpha is 0.70 or higher, which means that the utilized questionnaire is generally reliable.

Data Analysis

A quantitative design was used in the present study. Frequencies and weighted means were used to describe the extent of implementation of inventory management practices. Moreover, a causal research approach was utilized to measure the relationships between inventory management practices and business performance.

FINDINGS

It was necessary to provide the mean of each component by inventory management practice and hospital type and the interpretation for each of these factors. The identities of the respondent hospitals were withheld from publication in this study owing to an agreement reached between the researcher and the participating hospitals that the names of the facilities be kept strictly secret.

A. Inventory Management Practices

There were seven statements in this category, and each information received a mean value that corresponded to a moderate level of implementation. The composite mean is 3.28. This indicates that, in general, when it comes to the Pharmacy Premises and Storage of the hospitals, the hospitals have a high level of implementation of their inventory management procedures.

Table 2.1 Pharmacy Premises and Storage

Pharmacy Premises and Storage	Weighted Mean	VI
1. There is a suitable and adequate facility in the hospital for pharmaceutical items and medical supplies.	3.25	MI
2. There is adequate working space and enough dispensing outlets/counters accessible to the public.	3.44	HI
3. Appropriateness of sites and the maintenance requirements of all dispensaries and storage sites are evaluated by a team of pharmaceutical and administrative experts.	3.31	HI
4. Storage conditions (e.g., temperature, ventilation, humidity, sanitation, and hazards) are controlled, monitored, and appropriately documented.	3.06	MI
5. All pharmacy premises, fixtures, and equipment are maintained in clean and orderly operating conditions.	3.44	HI
6. The facility is supplied with enough refrigerators and an air conditioning system.	3.00	MI
7. There are professional written standard operating procedures and practice guidelines for pharmaceutical activities.	3.44	HI
Composite Mean	3.28	HI

Legend:
Highly Implemented (HI) 3.26-4.00
Moderately Implemented (MI) 2.51-3.25
Slightly Implemented (SI) 1.76-2.50
Not Implemented (NI) 1.00-1.75

The statement with the highest mean score was "There is adequate working space, and enough dispensing outlets/counters accessible to the public" and "All pharmacy premises, fixtures, and equipment are maintained in clean and orderly operating conditions," with a mean score of 3.44, which was further interpreted as "Highly implemented." With mean scores of 3.06 and 3.00, respectively, the statements that received the lowest ratings for both government and private hospitals were "The facility is supplied with sufficient refrigerators and air conditioning system" and "Storage conditions (e.g., temperature and ventilation controls, humidity, sanitation controls, and hazards) are controlled, monitored, and appropriately documented."

Table 2.2 Drug Information

Drug Information	Weighted Mean	VI
1. There is proper information and reference resources on all medications and medical supplies.	3.37	HI
2. Pharmacists can provide effective patient education and counseling.	3.00	MI

3.	The hospital pharmacists can provide information about proper medication usage to health care providers, patients, and colleagues.	3.31	HI
4.	There is clear and proper labeling of all inventory items and storage.	3.38	HI
	Composite Mean	3.27	HI

Legend:
Highly Implemented (HI) 3.26-4.00
Moderately Implemented (MI) 2.51-3.25
Slightly Implemented (SI) 1.76-2.50
Not Implemented (NI) 1.00-1.75

The means and their verbal interpretations for each item in the Drug Information are shown in the following table. This category included four different items. The hospitals have an overall mean of 3.27, which indicates that they have a high level of implementation of their inventory management procedures regarding the hospitals' drug information.

Among the indicators with the highest mean scores was "There is clear and appropriate labeling of all inventory items and storage areas," which had a score of 3.38. This shows that the hospitals were only somewhat successful in adopting or practicing the correct labeling of medical goods and medications. This may be confirmed based on the observations made by the researcher while conducting surveys among the inventory staff of the hospitals. Researchers were permitted to visit the hospitals' pharmacies. They discovered that the labeling was precise enough for all inventory personnel to comprehend and utilize as a reference while dispensing medications and medical supplies. According to a follow-up question at the end of the survey, one respondent, inventory personnel, also stated that the hospital pharmacy could still improve its inventory management by having a standard method of naming or labeling products, medical supplies, and medicines reflected in their system or records.

The statement with the lowest mean score for government hospitals, on the other hand, was "Pharmacists are capable of providing appropriate patient education and counseling," which had a mean score of 3.00. The researchers were able to speak with a few members of the inventory staff regarding this item. The main reason for ranking this item as the lowest among the others was that they had to care for a large number of patients who needed urgent treatment and support. Typically, in government hospitals, most medicine distribution requires a great deal of paperwork and listing, which consumes a significant amount of time from the inventory people or staff. In addition, one of the problems with government hospitals is that they are understaffed, causing the staff members in the institution to be overworked. Because of the large number of patients who need pharmacy services, they could no longer devote adequate time to patient education and counseling. Their physicians typically dispense patients' medicines, and the medication's purpose is explained to them straightforwardly and transparently so that they may cater to the needs of others and themselves.

Table 2.3 Safety and Security

Safety and Security	Weighted Mean	VI
1. Pharmacy records, ledgers, and vouchers are appropriately filed and are securely kept.	3.50	HI
2. There is a comprehensive assessment of security and safety measures and related equipment.	3.31	HI
3. There are proper security and protection measures for some storage sites and pharmacy outlets.	3.19	MI
4. There is a system for controlling and adequately handling the keys and passes of pharmacies, stores, and drug cabinets.	3.25	MI
5. There is a secured recording system for all pharmaceutical inventory items and medical supplies.	3.31	HI
6. Narcotics and other controlled drugs are stored in separate areas/storage.	3.25	MI
Composite Mean	3.30	HI

Legend:
Highly Implemented (HI) 3.26-4.00
Moderately Implemented (MI) 2.51-3.25
Slightly Implemented (SI) 1.76-2.50
Not Implemented (NI) 1.00-1.75

Safety and Security are represented in Table 1.3. A total of six statements were presented and scored following this indicator. When all hospitals were considered, the overall mean of hospitals was 3.30, indicating that the hospitals have successfully implemented their inventory management procedures in terms of safety and security.

The results revealed that the statement "Pharmacy records, ledgers, vouchers are filed correctly and are securely maintained" received the highest mean score, with a mean value of 3.50, as the most important. According to the researchers' observations from the pharmacy units of the participating hospitals, the majority of the participating hospitals' records, ledgers, and accounts were safeguarded against theft. This may have been the main reason why the inventory employees who took part in this research gave this specific item the highest rating out of all the others since they were confident that their recording system was safe enough against unwanted access from outside sources. The statement with the lowest mean value, on the other hand, was "There are adequate security and protection measures in place for certain storage locations and pharmaceutical stores," which had a mean score of 3.19.

Table 2.4 Personnel

	Personnel	Weighted Mean	VI
1.	All inventory staff is trained in good storage practices.	3.38	HI
2.	Pharmacists are recruited to a plan with a proper selection process and fair distribution criteria to comply with each hospital's patient load.	3.25	HI
3.	Pharmacists and technicians have a training plan with technical grading and a professional performance assessment system.	3.06	MI
4.	Clinical pharmacy and pharmaceutical care concepts are introduced to provide equitable and value-added pharmaceutical care to all patients.	3.19	MI
5.	The hospital has a pharmacist on-call after hours, providing pharmaceutical services coverage 24 hours.	2.81	MI
	Composite Mean	3.19	MI

Legend:
Highly Implemented (HI) 3.26-4.00
Moderately Implemented (MI) 2.51-3.25
Slightly Implemented (SI) 1.76-2.50
Not Implemented (NI) 1.00-1.75

Using the indicator Personnel, Table 1.4 displays the mean and its verbal interpretation. This indicator was applied to a total of five statements, each of which was given a score. When all hospitals were considered, the overall mean was 3.19, indicating that the hospitals have applied their inventory management procedures to a modest extent regarding their Personnel.

Among the hospital findings, it is worth noting that the state with the highest mean value was "All inventory personnel is educated inappropriate storage procedures," which had a mean value of 3.38. This demonstrates that the inventory employees have consistently received the required training to carry out appropriate storage and inventory control procedures. This indicates that the hospitals were carrying out their responsibilities to educate the inventory people they employed in their various pharmacy departments. According to one of the respondents to the study, everyone working in the pharmacy, which has a part in medicine and inventory management, must undergo training to understand their legal responsibilities and the anticipated standards of behavior. The statement that received the lowest mean score, on the other hand, was "The hospital has a pharmacist on-call after hours, offering pharmaceutical services coverage 24 hours," which received a mean score of 2.81.

As shown in Table 1.5, the mean and its verbal interpretation for the indicator Stock Control and Monitoring are provided. This indicator was applied to a total of eight statements, each of which was scored. When all hospitals were considered, the overall mean for hospitals was 3.11, indicating that they have implemented their inventory management procedures to a modest extent when it comes to Stock Control and Monitoring.

Table 2.5 Stock Control and Monitoring

	Stock Control and Monitoring	Weighted Mean	VI
1.	The hospital has enough supplies to provide the medical prescriptions and needs of the patients.	2.88	MI
2.	Drug procurements are based on proper quantification, taking into account data on actual drug consumption at each health facility.	3.00	MI
3.	There is a system for proper distribution and control of medications in hospital wards/nursing stations.	3.31	HI
4.	Critical care areas are implemented based on the unit-dose system that relies on actual medication orders for each patient.	3.06	MI
5.	There is a system to monitor and control the expiration dates of medications.	3.50	HI
6.	The hospital has computerized all inventory management systems.	3.13	MI
7.	The hospital has a database of inventory items that are synchronized to all departments' operating systems.	2.81	MI
8.	Standard operation procedures covering all aspects of pharmacy inventory practices are developed and disseminated, continuously revised and updated.	3.19	MI
	Composite Mean	3.11	MI

Legend:
Highly Implemented (HI) 3.26-4.00
Moderately Implemented (MI) 2.51-3.25
Slightly Implemented (SI) 1.76-2.50
Not Implemented (NI) 1.00-1.75

The statement that received the highest mean score in hospitals was "There is a system in place to monitor and regulate the expiration dates of drugs," which received a mean score of 3.50. According to the remarks made by inventory workers throughout the surveys, they are mainly concerned with keeping track of the expiration dates of the medications in stock. Generally speaking, freshly acquired medications with later expiration dates should be put behind drugs already in stock to avoid confusion. This technique may assist in ensuring that outdated medicines are not distributed. Whenever feasible, they do not want to reach the point when they have to throw out prescription drugs that have expired due to a lack of adequate monitoring. Because it has a potentially expensive impact on the organization, according to the Association of Healthcare Internal Auditors (AHIA) (2015), hospital pharmacies prevent mismanagement and the disposal of expired drugs.

According to one respondent who works in inventory management, expired medications can be returned to the manufacturer for a full or partial reimbursement depending on the circumstances. Conditions for producing expired or unused medicines are usually unique to each manufacturer, with requirements ranging from completing the essential paperwork to proper packing and labeling guidelines. Pharmacies frequently enter into agreements with other parties to outsource the return of these medications and receive credit for the returned drugs. Compounding

pharmaceuticals (i.e., medicines produced from raw ingredients in the pharmacy) and drug packages that have been partially consumed or repackaged on-site at a pharmacy, on the other hand, are not generally accepted back by manufacturers. They must be appropriately accounted for and disposed of following the expiration or non-use of the item in question in certain situations.

The statement that received the lowest mean score was "The hospital maintains an inventory of inventory items that are synced with the operational systems of all departments," which received a mean score of 2.81. This issue had the lowest mean score out of all the items in the whole survey questionnaire, which tells a lot about the management information system and information technology (IT) assistance that hospitals are receiving at the survey's administration. It is important to note that hospitals with a mean score of 2.81 have not yet established or implemented a system that syncs all databases, including the inventory levels of all drugs and medical supplies.

B. Service Quality

Table 3.1 Hospital Admission

Hospital Admission	Weighted Mean	VI
1. Upon admission, I was provided with an adequate amount of information.	3.53	HS
2. I was given information about the hospital policies and routines (e.g., visiting hours).	3.23	MS
3. I was informed about my daily routine (e.g., meal times, doctor/nurse visitation, etc.).	3.67	HS
4. My Admission was well-organized.	3.43	HS
Composite Mean	3.47	HS

Legend:
Highly Satisfied (HI) 3.26-4.00
Moderately Satisfied (MI) 2.51-3.25
Slightly Satisfied(SI) 1.76-2.50
Not Satisfied (NI) 1.00-1.75

The following findings can be found when we break down the results by hospital type: "I was informed about my daily routine (e.g., meal times, doctor/nurse visitation)," which received a mean score of 3.67 in hospitals, was the statement that received the highest mean value in nursing homes. Aside from that, “I was given information about hospital rules and routines (e.g., visiting hours)” had the lowest mean score of 3.23 for the statement “I was provided information about hospital policies and routines (e.g., visiting hours).

According to the data shown in Table 2.1, most respondents were extremely satisfied with the service provided by the hospitals in the aggregate. Parallel to this is a research done by the Irish Society for Quality and Safety in Healthcare (ISQSH) in 2010 that assessed patients' experiences of hospital services, with one of the variables measured being the patients' experience during the hospitalization process. According to the findings, 90.2 percent of patients expressed satisfaction with the quantity of care and information they offered upon admission, and this percentage increased with time. A question was also asked of patients in the same research about whether they thought their admission had been effectively planned. The vast majority of patients (89.2 percent)

agreed or strongly agreed that this was the case, whereas nearly one out of every ten (10.8 percent) thought their admittance had been poorly planned and coordinated.

Table 3.1 Care and Treatment

	Care and Treatment	Weighted Mean	VI
1.	I was satisfied with how my diagnosis was communicated to me by my doctor.	3.53	HS
2.	The purpose of tests/procedures/new medicines were always explained to me.	3.00	MS
3.	I was explained my health outcome/improvement.	3.80	HS
4.	Members of my healthcare team were able to provide me with ample time and information on my care and treatment during my hospital stay.	3.03	MS
5.	There was always a member of the healthcare team around when I needed one.	3.57	HS
6.	Nurses made their rounds frequently (at least 4 to 6 times a shift/as necessary).	3.53	HS
7.	The care given by members of my healthcare team was just as good at night as it was during the day.	3.10	MS
8.	If I needed help, it was always given promptly by hospital staff.	3.30	HS
9.	Staff always answered my call bell/alarm promptly.	3.13	MS
10.	It was possible to have a private conversation with a member of my healthcare team (e.g., doctor/nurse/therapist).	3.40	HS
	Composite Mean	3.47	HS

Legend:
Highly Satisfied (HI) 3.26-4.00
Moderately Satisfied (MI) 2.51-3.25
Slightly Satisfied(SI) 1.76-2.50
Not Satisfied (NI) 1.00-1.75

Patients were quite happy with the "manner in which the physicians were conveyed concerning the health outcomes to them by their doctor," as seen by the findings in the table, which had a mean score of 3.80. With a mean score of 3.03, the item with the lowest mean score in hospitals was "Members of my healthcare team were able to offer me with enough time and information on my care and treatment during my hospital stay," which was the item with the lowest mean score in hospitals. In general, patients gave the hospital a good rating for the care and treatment they received, with an overall mean score of 3.37 for the care and treatment they received.

Table 3.3 Hospital Environment and Facilities

	Hospital Environment and Facilities	Weighted Mean	VI
1.	I can say that the hospital has complete facilities (e.g., pharmacy, laboratory, emergency room, cashier, x-ray, etc.).	3.43	HS
2.	There is enough parking in the hospital.	3.67	HS
3.	There is an adequate number of public toilets in the hospital.	3.40	HS
4.	The signage provided helps me find my way around the hospital (e.g., signage).	2.87	MS

5.	The hospital facilities (e.g., bed, ward, room, bathrooms, toilets, showers) were of a clean standard.	3.23	MS
6.	There were sufficient trash bins provided.	3.30	HS
7.	Linens are fixed and changed (at least once a day/as necessary)	3.37	HS
8.	The room temperature or ventilation management is conducive enough for rest and sleep.	3.10	MS
	Composite Mean	3.30	HS

Legend:
Highly Satisfied (HI) 3.26-4.00
Moderately Satisfied (MI) 2.51-3.25
Slightly Satisfied(SI) 1.76-2.50
Not Satisfied (NI) 1.00-1.75

As shown in Table 2.3, when it comes to the hospital environment and amenities, patients were overwhelmingly happy with the parking space available at the hospital, with a mean satisfaction rating of 3.67.

With a mean of 2.87, patients from the hospitals ranked the item "The signage supplied are useful in finding my way about the hospital (for example, signage)" as the least helpful out of all of the items. This is not a good sign for the hospital's asset and facilities management staff because the patients appear to be perplexed by the signage that has been placed across the facility. According to the researchers' observations, the respondent hospitals did not have adequate signage across their facilities. For the researchers to access or visit a specific office or unit became increasingly difficult.

Patient satisfaction with the hospital's environment and the amenities given to them was generally good, with an overall mean score of 3.30 when all elements were taken into consideration at the time.

Table 3.4 Hospital Discharge

	Hospital Discharge	Weighted Mean	VI
1.	After admission, I have indicated the required length of stay in the hospital.	3.37	HS
2.	I feel my length of stay as a patient was appropriate.	3.37	HS
3.	I was given advanced notice about the date of my discharge.	3.53	HS
4.	I was discharged at a time convenient for me.	3.63	HS
	Composite Mean	3.48	HS

Legend:
Highly Satisfied (HI) 3.26-4.00
Moderately Satisfied (MI) 2.51-3.25
Slightly Satisfied(SI) 1.76-2.50
Not Satisfied (NI) 1.00-1.75

Following the findings, summarized in Table 2.4, patients from hospitals expressed great satisfaction with their experience upon hospital discharge, with a mean score of 3.48.

C. Relationship between Inventory Management Practices and Service Quality

Table 4. Correlation Matrix

		PPS	DI	SS	PERS	SCM	ServQuality
PPS	Pearson's r	—					
	p-value	—					
DI	Pearson's r	0.944	—				
	p-value	< .001	—				
SS	Pearson's r	0.965	0.950	—			
	p-value	< .001	< .001	—			
PERS	Pearson's r	0.951	0.925	0.917	—		
	p-value	< .001	< .001	< .001	—		
SCM	Pearson's r	0.922	0.959	0.936	0.932	—	
	p-value	< .001	< .001	< .001	< .001	—	
ServQuality	Pearson's r	0.437	0.418	0.406	0.533	0.535	—
	p-value	0.090	0.107	0.119	**0.034**	**0.033**	—

As seen in Table 4, the constructs of personnel and stock control and monitoring are significantly correlated to the service quality of hospitals with p-values of 0.034 and 0.033, respectively. This means that if personnel and stock control and tracking are highly implemented, the satisfaction level of patients in service delivery of hospitals is also high. For instance, if inventory staff is trained in that hospital, the satisfaction level in the service quality will increase. Another example is that if the hospital has enough supply to provide the medical prescriptions and needs of the patients, the service quality of hospitals will also increase. This only means that hospitals in Ilocos Norte should improve their inventory management practices to achieve a high patient satisfaction rating.

DISCUSSION

The primary objective of this research study was to determine the impact of inventory management techniques on the organizational performance of licensed hospitals in the province of Ilocos Norte. To respond, the researchers looked at the amount of application of the various inventory management indicators and the level of service delivery as assessed by the patients. This was accomplished using a survey as the primary research technique. The final analysis aimed to determine whether there is a statistically significant link between inventory management techniques and service delivery.

There were five inventory management practices that were studied—pharmacy premises and storage, drug information, safety and security, personnel and stock control, and monitoring. The study can be gleaned that the first three constructs of inventory management practices are highly implemented while personnel and stock monitoring and control are moderately implemented. On

the other hand, as service quality, hospitals have four categories. These are hospital admissions, care and treatment, hospital environment and facilities, and hospital discharge. In the different hospitals being studied, their patients were delighted with their service quality. Though limited in terms of facilities and equipment, hospitals in Ilocos Norte provide the best care and see to it that their patients receive the necessary care and treatment.

What was noteworthy is that personnel and stock control and monitoring are significantly correlated to service quality. This means that hospital staff in the inventory management department should be well trained, and stocks such as medicines should be adequately controlled and monitored.

Management Implications and Future Research Directions

Because pharmacy inventory management plays a vital role in health care and accounts for a significant portion of hospital health expenditure, the researchers developed a set of recommendations for the improvement of pharmaceutical services and inventory management as part of its strategy for delivering more efficient and higher-quality health care services to the public.

When it comes to stock control and monitoring, the debate revealed that hospitals had not implemented the following practices: computerization of all drugs and medical supplies and a database of inventory items that are synced with the operating systems of all departments. According to the survey results, hospitals are still manually counting and reconciling drugs and medical supplies in their pharmacy inventories, indicating that they do not have adequate IT assistance in this area.

This is a clear indication that hospitals continue to lag in adopting technology that makes inventory management systems more efficient, precise, and accurate, ultimately resulting in higher-quality healthcare services for patients. Nowadays, technology is used in nearly all aspects of pharmacy operations, including ordering, procurement, storage, and payment for products, among other things. Pharmacists should use modern technology in their practices to improve the management of their pharmacy inventories and save costs.

Lastly, the researchers recommend that for future research, Increase the number of respondents for both inventory personnel and patients to get more accurate data on the level of implementation of the inventory management practices and the level of service delivery of the respondent hospitals.

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