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## **Inventory Management Practices and Patient Satisfaction: A Case of Gihundwe District Hospital**

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# Inventory Management Practices and Patient Satisfaction: A Case of Gihundwe District Hospital

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## Abstract

The main objective of this research was to determine the role of inventory management practices and factors associated with patient satisfaction in Gihundwe District Hospital. Specific objectives were to evaluate the patient satisfaction level regarding the Medical Supplies acquisition and provision among patients of Gihundwe District Hospital; to assess the role of medical supplies stock movement to the patient satisfaction among employees of Gihundwe District Hospital, and to determine the factors associated with patient's non-satisfaction regarding medical supplies acquisition and provision among patients of Gihundwe District Hospital. This study was a cross-section study design, and the target population of this research comprises 147 employees and 90 patients of Gihundwe District Hospital. This study included the sample size of 107 employees of Gihundwe District Hospital from 147 employees and 73 patients from 90 patients by using Yamane's formula. The sample selection was carried out by using simple random sampling as the sampling technique. The quantitative data analysis, researcher use SPSS 21.0 version for producing table, figure. Bivariate and multivariate data analysis were carried out to determine the factors associated with patients' satisfaction. The significance level was set at the p-value less than 0.05 with 95% CI. The findings revealed that the majority of the respondent (72.6%) has a high level of satisfaction while 21.4% has low level of satisfaction. The overall mean score was 4.3 for the role and 4.1 for the importance of medical supplies acquisition to patient satisfaction. The overall mean score for inventory transaction records to patient satisfaction was 4. The overall score was high for all inventory actions parameters among employees of Gihundwe District. After the elimination of non-significant factors and Odd Ratios adjustment, insufficient health providers, Missing medication, and Missing reagent were all significantly associated with overall patients' low satisfaction regarding the medical supplies acquisition and provision. Their respective results were (AoR: 6.3, 95%CI: 2.033-19.703, p=0.18, AoR: 15.2, 95%CI: 4.991-26.476, p=0.04, and AoR: 4.2, 95%CI: 1.598-10.99, and p=0.25, respectively), including the stockout with p=0.04. This study concluded that insufficient health providers, missing medication, and missing reagent were significantly associated with low patient satisfaction regarding medical supplies acquisition

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and provision and are very important elements to improve the level of patient satisfaction in Gihundwe District hospital. These points could be based on to plan and create exquisite medical supplies acquisition and provision services and healthcare training.

**Keywords:** *Inventory management Practices, Patient, Patient satisfaction.*

## 1.0 Introduction

Contribution of inventory management practices to patient satisfaction is one of the key factors for success in hospitals. Ideally, hospitals would want to have enough medicines to satisfy the demands of its patients. On the other hand, the hospitals do not want to have too much medicines staying on hand because of the cost of carrying inventory and avoiding losses due to expiries (Emmanuel & Osazevaru, 2021). To meet the expectations of the patients, hospitals should strive to ensure availability of medical supplies at the right time, at their right quantity, right place, right quality, and right price in other to avoid expiry of medical supplies, their shortage and misuse (Eckert, 2012). In fact, resources are limited and hence the need to find the possible and effective ways of reducing cost of purchase and the cost of holding inventory in health sector is mandatory (Anichebe, & Agu, 2013). Furthermore, ensuring patient satisfaction is a continuous process and requires hospitals to maintain an effort and regular follow up on how they satisfy patient needs. In this regard, this research project aims at describing inventory management related factors that are associated to poor patient satisfaction. In this point of fact, researcher decided to conduct a study in Gihundwe District Hospital as a case study.

## 1.1 Research Objectives

- i. To evaluate the patient satisfaction level regarding the medical supplies acquisition and provision among patients of Gihundwe District Hospital.
- ii. To assess the role of medical supplies stock movement to the patient satisfaction among employees of Gihundwe District Hospital.
- iii. To determine the factors associated with patient's unsatisfaction regarding medical supplies acquisition and provision among patients of Gihundwe District Hospital.

## 2.0 Literature review

### 2.1 Review of Empirical Studies

The evaluation of patient satisfaction, a crucial aspect of healthcare quality, is a very important indicator of quality assessment in a health care system because it offers information on the provider's success in meeting the client's most crucial expectations and is a significant factor in determining patients' perspective and behavioral intention (Abebe, 2016). A study by Tamrat et al in Northwestern Ethiopia discovered that despite the highly high expectations that respondents had for the pharmacy services at Gondar University Referral Hospital, there was only moderate overall satisfaction with the pharmaceutical service (including the pharmacy atmosphere and services) (Tamrat et al, 2016). On the other hand, in a study on evaluation of the patient's level of satisfaction with health care services provided by the pharmacist at Aljaber ENT hospital, Eastern Region Alahsah, Kingdom of Saudi Arabia Saudi citizens reported the lowest levels of

satisfaction compared to Egyptians and other nationalities. The respondents between the ages of 56 and 60 were the most content with the pharmacist's healthcare services. Additionally, compared to men, female patients reported higher levels of satisfaction (Mansour, 2013). Moreover, empirical evidence from another study in Kingdom of Saudi Arabia show that Patients visiting outpatient pharmacies reported a poor degree of satisfaction, which varied across different socio-demographic groups. About half of the patients did not feel the outpatient pharmacy services were satisfactory (Alotaibi et al, 2021). In contrast, according to the findings of a study on patient satisfaction with ambulatory care pharmacy services, there was no statistically significant difference between the two hospitals' overall satisfaction with pharmacy services ( $P > .05$ ). The majority of respondents thought that outpatient care pharmacy services were good (Mostafa, 2022).

Owusu (2015) discussed the importance of disciplined medical supplies stock movement and inventory transactions records for hospitals and suggested serious consequences of traditional hospital purchasing including lack of inventory control, missed contract compliance, excess inventory levels, frequent stock-outs and costly emergency deliveries, workflow interruptions, expensive rework, and increased health system labor requirements. Ali (2012) stated that the efficient and effective inventory management practice will lead to higher patient satisfaction. Thus, the use of proper practices in inventory management especially at hospital pharmacies can enhance medical supplies availability. Eckert (2007) asserts that better management of inventory practice is directly proportional to patients' satisfaction. Patients are said to be more satisfied if suppliers of the hospital are able to meet and fulfil their orders within the required time.

Zerbini et al.; (2007) asserts that patient satisfaction is one of hospital milestones towards good reputation. The main focus of hospital is to make patient satisfaction which has an impact on the awareness of hospital. Patient expectations are largely dependent on the flexibility of medical supplies related inventory management practices. According to Dai and Kauffman (2001) asserted that lack of trained and competent professionals who understand the concept of medical supplies stock movement and inventory transactions records is a major challenge to most hospitals that make the negative impact of providing care to the patients.

In low and middle-income countries (LMICs) the results, of a study on Stock-outs of essential medicines among community health workers (CHWs) showed that patients were the most affected: stock-outs resulted in out-of-pocket expenses to buy unavailable medicines, poor adherence to medicine regimes, dissatisfaction, and low service utilization (Olaniran, 2022). Moreover, a study has examined the Inventory Management and Pharmaceutical Supply Chain Performance of Hospital Pharmacies in Bahrain and showed that enhancing the SC performance of hospitals is becoming crucial as the organization seeks to satisfy customers at a lesser cost. Inventory management of pharmaceutical supplies is essential to address patient demands (Shaju, 2023).

In the study by Mathur et al., (2018) the context of Indian healthcare industries, effective supply chain performance may be crucial for improving overall organizational performance, as there is a close relationship between supply chain management (SCM) practices and supply chain performance that may have a greater impact on improving organizational performance for patients' lives (Mathur et al., 2018). In addition, according to a survey by Pauwels, Simoens, Casteels, and Huys (2015), pharmaceuticals shortage is one of the major supply chain challenges

plaguing European countries and has the potential to cause stress among healthcare personnel when performing surgery or giving emergency care. Patients' lives might potentially be negatively impacted by this problem (Pauwels, 2015).

Older age and more education were linked to lower patient satisfaction mean scores, according to a study done among out-patients at public health clinics (Aniza, 2020). In addition, the overall results of the study carried out in Debre Tabor comprehensive specialized hospital, Northwest Ethiopia showed that Participants' ratings of the uncomfortable and inconvenient waiting spaces were found to be adversely correlated with the degree of patients' satisfaction [AOR = 0.31; 95%CI, (0.13, 0.49)]. Additionally, the lack of medicine availability was inversely correlated with respondent satisfaction [AOR = 0.12; 95%CI, (0.02, 0.37)]. Uncomfortable and inconvenient private counseling spaces had a negative correlation with clients' satisfaction (AOR = 1.37; 95%CI, 0.79, 4.42) (Molla, 2022).

On the other hand, findings from a study carried out in Slovakia demonstrated that Age, education level, the number of pharmacies visited, the quantity of medications, the cost of medications in pharmacies, and geographic location all had statistically significant effects on the assessment of patients' satisfaction in all three aspects (p 0.001). In neither of the three monitored dimensions—Managing Therapy, Interpersonal Relationships, or General Satisfaction—did gender have a statistically significant impact on the satisfaction rating. Long-term medication use had no discernible impact on managing therapy satisfaction (p = 0.170), either. (Mináriková, 2015).

## 2.2 Theoretical Framework

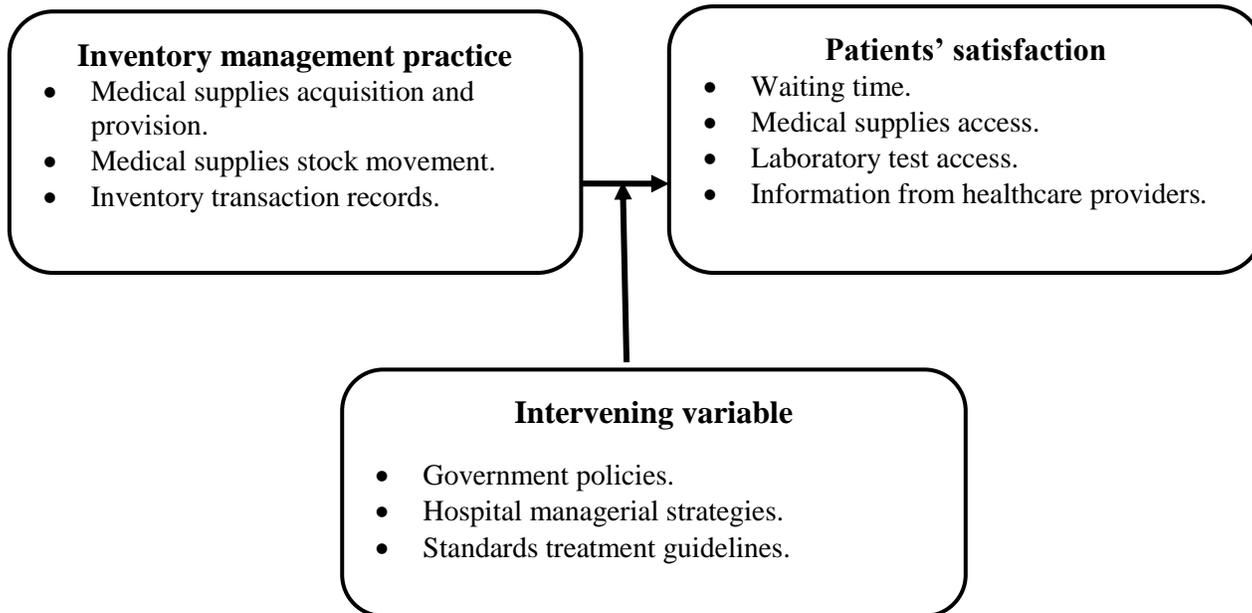
In this study of inventory management practices and patient satisfaction, researcher will focus on the theory of Water (2013) related to the inventory management practice to the patient's satisfaction.

Inventory management practices enable hospitals to mitigate its inventory costs for example holding costs, stock out costs, lead time among others. Also, the hospital can improve on its delivery time leading to quick delivery of medicines. Integration is one of the inventory management tools used to achieve efficiency. In an integrated system, the hospital and the supplier can be able to share information. This helps the supplier to know when the hospital is out of stock. This improves supply chain performance since the supplier is able to deliver medicines on time.

To successfully manage inventory, top management and the employees should be actively involved in key decisions on supply of medicines. The hospital should provide facilities and resources to manage inventory management. This will help the hospital to improve on efficiency and thus improve on inventory management practices. It was further revealed that there existed a positive relationship between inventory management practices and patient satisfaction.

The Regulatory Focus and Fit theory has shown a great impact in the organization. This theory has included different values of advancement and growth which improve the leadership, organizational development, and employee's productivity toward the needed goal (Tory, 2020). Therefore, focusing to the task of inventory management could help to proactively plan and engage the tasked employees towards the matched task to the goal of managing inventory safely and successfully

(Veerle, 2018). The above theory enabled the researcher to establish the conceptual framework as follows:



**Figure 1:Conceptual framework**

**Source : Researcher (2023)**

In the dependent variables as the result of independent variable, inventory management practices may find out the important impact to the patient satisfaction. The independent variables are medical supplies acquisition, medical supplies stock movement, and inventory transaction records. Items regarding the medical supplies acquisition and provision were addressed to the patients for appraising their satisfaction level.

### **3.0 Materials and Methods**

This study is a descriptive research design and used cross-sectional method of study. This study involved variables about patient satisfaction, the role of inventory management practice and factors associated to the patient's satisfaction. The study population based on the employees and patients of Gihundwe District hospital as a case study. The target population to this research is 147 employees for questionnaire, and 90 patients for the interview schedule.

### **4.0 Results and discussion**

The third objective of this study was to determine the factors associated with patient satisfaction in Gihundwe District Hospital. The researcher carried out the bivariate analysis which verified the demographic factors associated with overall patients' low satisfaction regarding the pharmaceutical products provisions.

#### 4.1 Patient satisfaction regarding the medical supplies acquisition and provision in Gihundwe District Hospital.

The first objective was to determine the Patient satisfaction regarding the medical supplies acquisition and provision in Gihundwe District Hospital. Below table (table 4.5) shows the level of satisfaction of the study participants regarding perceptions of respondent’s medical supplies provision. This study findings revealed that out of seven variables under study only two variables have found to have low satisfaction regarding the medical supplies provision, which are the waiting time for being provided the drugs as expected, waiting time meaningful and endurable for medical supplies access as expected, with a mean score of 2.8 and 2.9 respectively.

**Table 1 Patient satisfaction regarding medical supplies acquisition and provision among patients at Gihundwe District Hospital**

Variables	Rank	Frequency	Percent	Mean	Interpretation
<b>Are you satisfied with the waiting time for being provided the drugs as expected?</b>					
	Strongly disagree	11	15.1	2.8	Low
	Disagree	25	34.2		
	Neutral	3	4.1		
	Agree	29	39.7		
	Strongly agree	5	6.8		
<b>Was the waiting time meaningful and endurable for medical supplies access as expected?</b>					
	Strongly disagree	9	12.3	2.9	Low
	Disagree	26	35.6		
	Neutral	3	4.1		
	Agree	28	38.4		
	Strongly agree	7	9.6		
<b>All laboratory tests were executed as requested by your doctor?</b>					
	Strongly disagree	6	8.2	3.6	High
	Disagree	7	9.6		
	Neutral	9	12.3		
	Agree	37	50.7		
	Strongly agree	14	19.2		
<b>You have received all information related to how you will use the drugs from the health providers? (The guidance and counseling about taking drugs)</b>					
	Strongly disagree	10	13.7	3.5	High
	Disagree	7	9.6		
	Neutral	6	8.2		
	Agree	32	43.8		
	Strongly agree	18	24.7		
<b>Are you happy with the requested drugs on your prescription and the drugs provided by the pharmacist.</b>					
	Strongly disagree	8	11.0	3.6	High
	Disagree	17	23.3		
	Neutral	1	1.4		
	Agree	15	20.5		
	Strongly agree	32	43.8		
<b>Are you happy with the pharmacy service regarding the drugs availability?</b>					
	Strongly disagree	6	8.2	3.2	High
	Disagree	20	27.4		
	Neutral	2	2.7		
	Agree	38	52.1		
	Strongly agree	7	9.6		
<b>Are you happy with the convenience, pharmacy facilities, comfort when waiting the drugs</b>					
	Strongly disagree	9	12.3	3.2	High
	Disagree	9	12.3		

Neutral	24	32.9
Agree	15	20.5
Strongly agree	16	21.9

Overall mean

3.2 High

Source: Primary Data, (2023)

This Figure 1 showed the Overall Patient satisfaction regarding medical supplies acquisition and provision at Gihundwe District Hospital, the findings revealed that the majority of the respondent (72.6%) has a high level of satisfaction while 21.4% has low level of satisfaction.



Figure 1: Overall Patient satisfaction regarding medical supplies acquisition and provision at Gihundwe District Hospital

#### 4.2 Role and importance of medical supplies stock movement to the patient satisfaction among employees in Gihundwe District Hospital

##### Role of medical supplies stock movement

This study findings as illustrated in Table 2 showed that majority of respondents 77.6 % (83 out of 107 employees) strongly agreed that medical stock movement contributes to the laboratory tests accessibility to patients; with a mean of 4.5 qualified as very high. Majority of respondents 68.2 % (73 out of 107 employees) strongly agreed that medical stock movement minimizes waiting time to patient, with a mean Of 4.4 qualified as very high. Majority of respondents 68.2% (73 out of 107 employees) strongly agreed that medical stock movement contributes to medical supplies access to patient, with a mean of 4.5 qualified as very high. Majority of respondents 43% (46 out of 107 employees) strongly agreed that medical stock movement facilitates patients to have information from healthcare providers, with a mean of 4 qualified as very high. The overall mean score of the role of medical supplies stock movement to the patient satisfaction according to health providers was very high with 4.3 mean score.

**Table 2 : Distribution of the role of medical supplies stock movement to the patient satisfaction according to health providers.**

Variables	Rank	Frequency	Percent	Mean	Interpretation
Medical stock movement contributes to the laboratory tests accessibility to patients	Strongly disagree	0	0	4.5	Very High
	Disagree	10	9.3		
	Neutral	5	4.7		
	Agree	9	8.4		
	Strongly agree	83	77.6		
Medical stock movement minimizes waiting time to patient.	Strongly disagree	0	0	4.4	Very High
	Disagree	9	8.4		
	Neutral	4	3.7		
	Agree	21	19.6		
	Strongly agree	73	68.2		
Medical stock movement contributes to medical supplies access to patient.	Strongly disagree	0	0	4.5	Very High
	Disagree	9	8.4		
	Neutral	2	1.9		
	Agree	23	21.5		
	Strongly agree	73	68.2		
Medical stock movement facilitates patients to have information from healthcare providers.	Strongly disagree	1	0.9	4	Very High
	Disagree	12	11.2		
	Neutral	9	8.4		
	Agree	39	36.4		
	Strongly agree	46	43		
Overall Mean				4.3	Very High

**Source:** Primary Data (2023)

### Importance of medical supplies acquisition according to health providers

The findings of this study in Table 3 showed that the majority of respondents 55.1% (59 out of 107 employees) strongly agreed that medical supplies acquisition reduces waiting time to patients with 4.2 of mean qualified as very high. Majority of respondents 62.6% (67 out of 107 employees) also strongly agreed that medical supplies acquisition contribute to the laboratory tests access to patient with 4.2 as mean qualified as very high. Majority of respondents 75.7% (81 out of 107 employees) strongly agreed that medical supplies acquisition allow / enables medical supplies access to patient with 4.5 as mean qualified as very high. Majority of respondents 72.9% (78 out of 107 employees) agreed that medical supplies acquisition permits patients to get information from healthcare providers with 3.7 as mean qualified as very high.

**Table 3: Distribution of the importance of medical supplies acquisition to the patient satisfaction according to health providers.**

Variables	Rank	Frequency	Percent	Mean	Interpretation
Medical supplies acquisition reduces waiting time to patients	Strongly disagree	0	0	4.2	Very high
	Disagree	12	11.2		
	Neutral	4	3.7		
	Agree	32	29.9		
	Strongly agree	59	55.1		
Medical supplies acquisition contributes to the laboratory tests access to patient	Strongly disagree	0	0	4.2	Very high
	Disagree	17	15.9		
	Neutral	4	3.7		
	Agree	19	17.8		
	Strongly agree	67	62.6		
Medical supplies acquisition allow / enables medical supplies access to patient	Strongly disagree	0	0	4.5	Very high
	Disagree	11	10.3		
	Neutral	3	2.8		
	Agree	12	11.2		
	Strongly agree	81	75.7		
Medical supplies acquisition permits patients to get information from healthcare providers.	Strongly disagree	0	0	3.7	Very high
	Disagree	14	13.1		
	Neutral	9	8.4		
	Agree	78	72.9		
	Strongly agree	6	5.6		
Overall mean				4.1	Very high

**Source:** Primary Data (2023)

Table 3 demonstrated that the majority of respondents 58.9 % (63 out of 107 employees) strongly agreed that Inventory transaction records influence reduction of waiting time to the patients; with a mean of 4.3 qualified as very high. Majority of respondents 68.2% (73 out of 107 employees) strongly agreed that Inventory transaction records contributes to the laboratory test accessibility to patients, with a mean Of 4.5 qualified as very high. Majority of respondents 68.2% (73 out of 107 employees) strongly agreed that Inventory transaction records facilitates medical supplies access to patient, with a mean of 4.4 qualified as very high. Majority of respondents 24.3% (26 out of 107 employees) disagreed that Inventory transaction records helps in providing information to patients from healthcare providers, with a mean of 3.1 qualified as high.

**Table 4: Inventory transaction records toward patients' satisfaction parameters among employees of Gihundwe District Hospital**

Variables	Rank	Frequency	Percent	Mean	Interpretation
Inventory transaction records influence reduction of waiting time to the patients.	Strongly disagree	7	6.5	4.3	Very High
	Disagree	2	1.9		
	Neutral	4	3.7		
	Agree	31	29		
	Strongly agree	63	58.9		
Inventory transaction records contributes to the laboratory test accessibility to patients	Strongly disagree	0	0	4.5	Very High
	Disagree	5	4.7		
	Neutral	1	0.9		
	Agree	28	26.2		
	Strongly agree	73	68.2		
Inventory transaction records facilitates medical supplies access to patient	Strongly disagree	0	0	4.4	Very High
	Disagree	6	5.6		
	Neutral	10	9.3		
	Agree	18	16.8		
	Strongly agree	73	68.2		
Inventory transaction records helps in providing information to patients from healthcare providers.	Strongly disagree	17	15.9	3.1	High
	Disagree	26	24.3		
	Neutral	16	15		
	Agree	25	23.4		
	Strongly agree	23	21.5		
<b>Overall mean</b>				4.0	High

**Source:** Primary Data (2023)

### 4.3 Factors associated with patient satisfaction regarding the medical supplies acquisition and provision in Gihundwe District Hospital.

The bivariate analysis results shown in Table 4 showed that the socio-demographic factors under investigation (sex, age, education, and working experience) were not significantly associated with overall patients' low satisfaction regarding the Medical Supplies acquisition and provision with ( $X^2=0.165$ ,  $p=0.7$ ), ( $X^2=2.714$ ,  $p=0.4$ ), ( $X^2=3.392$ ,  $p=0.3$ ), respectively.

**Table 4: Bivariate analysis of demographic factors associated with overall patients' low satisfaction regarding the medical supplies acquisition and provisions.**

Variable	Overall satisfaction of the respondents			Chi-square	P – value
	Low (%)	High (%)	Total (%)		
<b>Sex of the respondents</b>				0.165	0.7
Male	8(11.0%)	24(32.9%)	32(43.8%)		
Female	12(16.4%)	29(39.7%)	41(56.2%)		
Total	20 (27.4%)	53(72.6%)	73(100.0%)		
<b>Age of the respondents</b>				2.714	0.4
Under 30	7 (9.6%)	20 (27.4%)	27 (37.0%)		
30-40	9 (12.3%)	24 (32.9%)	33 (45.2%)		
40-50	3 (4.1%)	9 (12.3%)	12 (16.4%)		
50-60	1 (1.4%)	0 (0%)	1 (1.4%)		
Total	20(27.4%)	53 (72.6%)	73 (100.0%)		
<b>Education of the respondent</b>				3.392	0.3
Primary	7 (9.6%)	12 (16.4%)	19 (26.0%)		
Secondary	7 (9.6%)	31 (42.5%)	38(52.1%)		
Bachelor	5 (6.8%)	5 (6.8%)	14(19.2%)		
Masters	1 (1.4%)	1 (1.4%)	2 (2.7%)		
Total	20(27.4%)	53 (72.6%)	73 (100.0%)		

**Source:** Primary Data (2023)

**Bivariate analysis of health services factors associated with overall patients' low satisfaction regarding medical supplies acquisition and provisions.**

The bivariate analysis findings shown in Table 6 demonstrated that the Bivariate analysis of health services factors associated with overall patients' low satisfaction regarding the pharmaceutical products provisions. This table shows that eight variables were significantly associated with low patients' satisfaction. Many patients at the queue ( $X^2=10.337$ ,  $p=.002$ ), missing medication ( $X^2=22.149$ ,  $p<0.001$ ) and insufficient Health providers ( $X^2=38.321$ ,  $p<0.001$ ) were associated with low patients' satisfaction. Other associated variables were also missing reagent ( $X^2=18.522$ ,  $p<0.001$ ), stock out ( $X^2=11.665$ ,  $p=0.001$ ), drug not managed by health facility ( $X^2=11.666$ ,  $p<0.001$ ). Additionally, medicine still in the pipeline ( $X^2=12.882$ ,  $p=0.001$ ), no written or oral info received ( $X^2=16.360$ ,  $p<0.001$ ) were also associated with patients' overall low satisfaction with the pharmaceutical product provisions. However, other research variables were not found to be significantly associated to patients' overall low satisfaction with the pharmaceutical products provisions.

**Table 6: Bivariate analysis of health services factors associated with overall patients' low satisfaction regarding medical supplies acquisition and provisions.**

Variable	overall satisfaction level of the respondent			Chi-square	P- value
	Low (%)	High (%)	Total (%)		
<b>Many patients at the queue</b>				10.337	<b>0.002</b>
Yes	16(21.9)	20(27.4)	36(49.3)		
No	4(5.5)	33(45.2)	37(50.7)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Internet connection issue</b>				2.485	0.1
Yes	10(13.7)	16(21.9)	26(35.6)		
No	10(13.7)	37(50.7)	47(64.4)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Missing medication</b>				22.149	<b>&lt;0.001</b>
Yes	15(20.5)	9(12.3)	24(32.9)		
No	5(6.8)	44(60.3)	49(67.1)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Insufficient Health providers</b>				38.321	<b>&lt;0.001</b>
Yes	16(21.9)	4(5.5)	20(27.4)		
No	4(5.5)	49(67.1)	53(72.6)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Missing reagent</b>				18.522	<b>&lt;0.001</b>
Yes	12(16.14)	6(8.2)	18(24.7)		
No	8(11)	47(64.4)	55(75.3)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Unfunctional machine</b>				4.821	0.06
Yes	3(4.1)	1(1.4)	4(5.5)		
No	17(23.3)	52(71.2)	69(94.5)		
Total	20(27.4)	53(72.6)	73(100)		
<b>No electricity</b>				1.087	0.3
Yes	2(2.7)	2(2.7)	4(5.5)		
No	18(24.7)	51(69.9)	69(94.5)		
Total	20(27.4)	53(72.6)	73(100)		
<b>No lab technician</b>				5.068	0.4
Yes	4(5.5)	2(2.7)	6(8.2)		
No	16(21.9)	51(69.9)	67(91.8)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Stock out</b>				11.665	<b>0.001</b>
Yes	14(19.2)	14(19.2)	28(38.4)		
No	6(8.2)	39(53.4)	45(61.6)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Drug not managed by health facility</b>				11.666	<b>0.001</b>
Yes	14(19.2)	14(19.2)	28(38.4)		
No	6(8.2)	39(53.4)	45(61.6)		
Total	20(27.4)	53(72.6)	73(100)		
<b>Medicine still in the pipeline</b>				12.881	<b>0.001</b>
Yes	13(17.8)	11(15.1)	24(32.9)		
No	7(9.6)	42(57.5)	49(67.1)		
Total	20(27.4)	53(72.6)	73(100)		
<b>No written or oral info received</b>				16.360	<b>&lt;0.001</b>
Yes	9(12.3)	3(4.1)	12(16.4)		
No	11(15.1)	50(68.5)	61(83.6)		
Total	20(27.4)	53(72.6)	73(100)		

**Source:** Primary Data (2023)

After the elimination of non-significant factors and Odd Ratios adjustment, Insufficient health providers, Missing medication, and Missing reagent, stock out were all significantly associated with overall patients' low satisfaction regarding medical supplies provisions. Their respective results were (AoR: 6.3, 95%CI: 2.033-19.703, p=0.18, AoR: 15.2, 95%CI: 4.991-26.476, p=0.04, and AoR: 4.2, 95%CI: 1.598-10.99, and p=0.25, respectively), according to the findings in Table 4.7.

**Table 5** *Multivariate analysis of factors associated with overall patients’ low satisfaction regarding the medical supplies provisions*

Variables	Contributing factors to Low satisfaction level of patient regarding medical acquisition & provision.		P-value
	AoR	95% CI	
<b>Many patients at the queue</b>			
No	Ref		
Yes	3.2	1.901-4.523	.057
<b>Missing medication</b>			
No	Ref		
Yes	6.3	2.033-19.703	<b>.018</b>
<b>Insufficient health providers</b>			
No	Ref		
Yes	15.2	4.991-26.476	<b>.004</b>
<b>Missing reagent</b>			
No	Ref		
Yes	4.1	1.598-10.99.	<b>.025</b>
<b>Stock out</b>			
No	Ref		
Yes	2.5	1.730-4.326	<b>.045</b>

**Source:** Primary data (2023)

#### 4.4 Discussion of the Results

This study findings showed that female participants were the majority with 65.4% for female employees and 56.2 % for female patients. The age between 40 and 50 years was the most represented with 60.7% for the employees while the age between 30 and 40 for the patients with 45.22% of all the study participants. These findings are slightly elevated that the results of the satisfaction study results carried out in Ethiopia which showed that males were 53.4% while 31.9% participants age was ≥45 years old (Go jam, 2016). The employees who have diploma were the most represented with 58.9% while 52.1% was for the patients were secondary school degree holder. This study result on prevalence of Overall Patient satisfaction regarding medical supplies acquisition and provision showed that the majority of the respondents 72.6% have a high satisfaction and 27.4% low satisfaction. This results is very high compared to another study which revealed that more than half (56%) of the respondents were satisfied with clinical pharmacy service (Gemmechu, 2021). This satisfaction results are also far more high than another study results which was carried out in Northwest Ethiopia showed that only (50.9%) of the study participants had satisfaction with the outpatient pharmacists’ service (Mulugeta, 2022).

The findings on Inventory transaction records toward patients’ satisfaction showed a high mean score. These findings are in agreement with another study carried out by Ogonu (2016), who stated that Inventory Management System emerged as the most significant positive impact on customer satisfaction. Whereas information technology was found to have a strong positive impact on customer loyalty (Ogonu, 2016). This study findings shows the results regarding Role of medical supplies stock movement to the patient satisfaction where most of the respondents strongly agreed on all the variables under study with high mean score above 4 for all items. It was also found that

the stockout was significantly associated with low patient satisfaction in bivariate analysis and not in multivariate analysis. Whereas in a study on Stock-outs of essential medicines among community health workers (CHWs) in low- and middle-income countries (LMICs) the results showed that patients were the most affected. The stock-outs resulted in out-of-pocket expenses to buy unavailable medicines, poor adherence to medicine regimes, dissatisfaction, and low service utilization (Olaniran, 2022). The findings of this study in Table 4.7 showed that the majority of respondents strongly agreed that: medical supplies acquisition reduces waiting time to patients, medical supplies acquisition contribute to the laboratory tests access to patient. Additionally, medical supplies acquisition enables medical supplies access to patient, medical supplies acquisition permitted patients to get information from healthcare providers with high mean score. These results were supported by the study done by Shaju 2023 in Bahrain, he found a significant positive relationship between inventory level Control and Pharmaceutical Supply Chain performance. Similarly, the relationship between demand forecasting and PSC performance was positive and significant (Shaju 2023).

The findings demonstrated that the socio-demographic factors were not significantly associated with overall patients' low satisfaction regarding the medical supplies acquisition and provisions. However, another study demonstrated that age, gender, education level, waiting time, doctors' communication behavior, and patient trust level were significantly associated with patient satisfaction independently (Chandra, 2019). Another study done in Ethiopia showed that higher the age, the lower the patient's satisfaction, which is different to this study findings (Yohanes, 2020). This study showed that 8 variables were associated with the low patient's satisfaction by bivariate analysis with  $p < 0.05$ . These variables are many patients at the queue ( $p=0.002$ ), missing medication ( $p<0.001$ ), insufficient health providers ( $p<0.001$ ), and missing reagent ( $p<0.001$ ). Stock out ( $p=0.001$ ), drug not managed by health facility ( $p=0.001$ ), medicine still in the pipeline ( $p=0.001$ ). The lack of provision of written or oral information related to the drugs was associated with low patient satisfaction in bivariate analysis ( $p<0.001$ ), but not in multivariate analysis. This is similar to the study conducted in Mpigi District-Uganda which reported Staff giving enough time and attention to explain patient problem was associated with high patient satisfaction ( $p=0.005$ ). Missing medication was 6 times associated with low satisfaction while availability of medicine and supplies were significantly found to improve patients' satisfaction in the Ugandan study ( $p=0.001$ ) (Kizito, 2021). Therefore, this contributes to better patient trust and thus lead to better patient satisfaction and positively influence health outcomes (Chandra, 2019). Although missing drugs and reagent were found to contribute to low patient satisfaction, the Fang study (2019) showed that "Medical expense" and "Reimbursement ratio for medical expenses" played a high role in low patient satisfaction (Fang, 2019).

However, only 3 variables were significant in multivariate analysis. These variables are insufficient health providers, missing medication, missing reagent were highly associated with overall patients' low satisfaction regarding the pharmaceutical products provisions with  $p=0.018$ ,  $p=0.004$ ,  $p=0.025$  respectively. Although many patients at the queue was only significantly associated with low patient satisfaction in bivariate analysis, this may cause the low comfort and inconvenient waiting time. This was shown in another study conducted in Ethiopia which demonstrated that Participants' responses scored on the uncomfortable and inconvenient waiting areas [AOR = 0.31; 95% CI, (0.13, 0.49)] were found to be negatively associated with the level of patients' satisfaction. Also, the unavailability of medications [AOR = 0.12; 95% CI, (0.02, 0.37)] was negatively associated with the respondent satisfaction (Mulugeta, 2022). Despite the

drawback or this study limitation as cross-sectional study, the practice-related implications of this research include helping hospital, pharmacies identify the most effective methods for managing their pharmaceutical inventories. Additionally, comprehending how inventory control and demand forecasting affect PSC performance to prevent stockouts and withstand changes in demand and supply to ensure patients satisfaction (Shaju, 2023).

## 5.0 Conclusion

This study concluded that insufficient health providers, missing medication, and missing reagent were significantly associated with low patient satisfaction and are very important elements to improve the level of patient satisfaction in Gihundwe District hospital. These points could be based on to plan and create exquisite medical supplies and provision services and healthcare training.

## 6.0 Recommendations

Basing on the present findings toward the satisfaction of health facility clients, our recommendations are based in twofold; Health facility: to emphasize on the procurement of all necessary medical supplies for early proving of related health care services. Ministry of health and policy makers: to make a national health policy on medical supplies requirement within electronic platform to ensure quickness of supplies, inventory, and jam tracking to be able to deliver high qualified healthcare. The researcher suggested that similar studies can be conducted in a larger sample of hospitals and health canter to be able to build the electronic medical supplies platform which can help a heightened healthcare delivery and client satisfaction.

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