Factors influencing utilisation of hernia care among women seeking surgical healthcare: A study of a peri-urban health facility in Eastern Ghana

Abstract

Aims: To assess factors associated with the utilization of quality hernia care among female adults seeking healthcare.

Study design: A descriptive cross-sectional design was used.

Place and Duration of Study: Nsawam Government Hospital in the Nsawam-Adoagyiri Municipality of the Eastern Region of Ghana between May 15th and June 15th, 2022.

Methodology: We applied a quantitative research method where both self-administered and interviewer-administered strategies were applied to administer a structured questionnaire. A consecutive sampling approach was used to recruit a total of 180 women who sought surgical care. Data was analyzed using STATA version 15 Software. Descriptive statistics, chi-square test, and multiple logistic regression analysis were applied to determine the relationship between the dependent and independent variables. The level of significance was accepted at *P*=.05 at a 95% confidence interval.

Results: Overall, 180 women took part in the study out of the estimated sample size of 189, giving a response rate of 95.2%. The proportion of hernia among the women was 56% out of which the common types were umbilical hernia (32%) and incisional hernia (12%). The rate of utilization of hernia care was 75%. Logistic regression showed that marital status (being single) (aOR = 0.03; 95% CI = 0.002-0.20; *P* =.001), occupation (traders) (aOR = 0.03; 95% CI = 0.003-0.35; *P* = .004), and reliance on traditional healers (aOR = 0.11; 95% CI = 0.02-0.74; *P* = .024) were significant predictors of utilization of hernia care.

Conclusion: The study showed a high prevalence of hernia cases among women seeking surgical care. The majority of these hernias were inguinal hernia followed by umbilical and incisional hernia. The study suggests that managers at the hospital level, policymakers, and stakeholders in the health sector should ensure the provision of affordable hernia care for women such that early detection would be one of the key strategies to prevent imminent complications or limitations to daily activity.

Keywords: hernia care, quality care, women, surgical healthcare, utilization, urban area, Ghana

1.0. Introduction

Available data shows that about 20 million hernia repairs are performed yearly. Hernioplasty is observed as the most common surgical procedure around the world [1]. In Sub-Saharan Africa, over 50% of all hernia cases reported to healthcare institutions may, however, be untreated as a result of a lack of adequate and affordable surgical care. Rates of hernia repair are estimated at around 56, 21, and 18 per 100,000 in parts of Africa including Ghana, Uganda, and Malawi respectively [2]. Access to hernia treatment among the population is limited in some settings. A study found that of the 93.2% respondents who indicated the need for health care, only 22.2% underwent a procedure, citing limited funds (59.0%) as the major barrier to care [3]. Patel et al. [3] suggested that improving access to surgical care for adult patients with hernia and early intervention for children would be vital to address the burden of disease and prevent complications or limitations to daily activity. Unfortunately, the majority of these surgeries are performed during emergencies only when clients and families have no other option [4]. Elective surgeries are not often utilized by most individuals with hernia due to financial challenges and negative socio-cultural beliefs [5]. Sazhin *et al*. [6] informed that 70% of respondents had never asked for medical advice before, and 30% had undergone hernia repair before.

Ahmed Alenazi *et al*. [ ] indicated that the commonest cases of hernia were para-umbilical, inguinal, and umbilical in 20.8% of the cases and the risk factors for abdominal hernia included obesity, previous abdominal surgery, previous abdominal trauma, positive family history of hernia and grand multipara. Abdominal wall hernia is frequently encountered in surgical practices, accounting for 15% - 18% of all surgical procedures globally [8]. About 75% of all hernias occur in the inguinal region, 2/3 of these are indirect inguinal hernias. Femoral hernias comprise only 3% of all groin hernias. Indirect inguinal hernia and femoral

hernia occur more commonly on the right side [9] A study in Pakistan revealed that inguinal hernias were more prevalent (70%), than paraumbilical hernia (14.5%), umbilical hernia (8.2%) and incisional hernia (7.3%) [10]. A study noted that umbilical hernias were found in 10.2%, groin hernias in 8.3%, incisional in 2.4% of residents; and 30% had undergone hernia repair before [6].

Few documented studies indicate that 7.7% of the adult male population in Southern Ghana have hernia while in Tanzania (East Africa), the prevalence ranges from 16% to over 30% on the island of Pemba, with inguinal hernia being the commonest type in African countries [11, 12]. Symptoms of hernia may not appear in some people and they will only realize they have this condition during medical check-up [13]. A study found that 20% of patients had developed incisional hernia while 84% were symptomatic [14]. A study showed that the overall prevalence of abdominal hernia was 11.7% more prevalent in females than in males (63.4% vs. 36.6%) [7]. A study reported that in 2010, emergent hernia rates were highest among adults who were 65 years and older, with 71.3 and 42.0 emergent hernia repairs per 100,000 for men and women respectively 15].

In Ghana, a study reported a 13% prevalence of inguinal hernia with untreated inguinal hernia at 10.8% among the male adults in Barekese in the Ashanti region [16]. Beard *et al*. [17] noted the prevalence of inguinal hernia to be 3.2%, an annual incidence rate of symptomatic hernias to be 210/100000 and a hernia repair rate of 30/100000 depicting an unmet need of approximately a million hernia surgeries over a period of 10 years. A nationwide study in Ghana saw a total of 17,418 hernia surgeries with an annual rate of 65/100,000 representing 7.5% of all procedures conducted [18]. Furthermore, 96% of hernia surgeries were elective while 4% were based on emergencies, 97% of the elective surgeries

were for inguinal hernias while femoral, incisional, and ventral non-incisional hernias made up the remainder [18].

A study investigated the impact of incisional hernia on quality of life and body image [14]. Crucially, hernia can reduce the quality of life and activities of daily linving of women as some analysts observed that mesh density was believed to impact patient outcomes, including rates of chronic pain and perception of mesh in the abdominal wall - after hernia repair [19]. It has been observed that chronic pain is the most serious long-term complication that can occur after repair of a groin hernia [20]. Sazhin *et al*. [6] showed that 72% of individuals with hernia reported local pain. Courtney [20] found that chronic pain had significant effects on all daily activities including walking, work, sleep, relationships with other people, mood and general enjoyment of life - after repair of a groin hernia.

Some researchers concluded that patients with incisional hernia reported lower mean scores on physical components of health-related quality of life and body image [14]. Another study confirmed that chronic pain persisted in most patients who reported severe or very severe pain at 3 months after hernia repair, and had a significant effect on the patients' daily activities and quality of life [20]. However, a study indicated that there was no significant differences in quality of life of hernia-specific quality of life score at 1 year among patients [19].

A study showed that factors found to be associated with impairment of function due to pain afrer a hernia surgery in Sweden were: age below median, female gender, medial hernia, open repair technique, postoperative complications, need for operation for recurrence, presence of preoperative pain and less than three years from surgery [21]. Kalliomäki [21]

suggested the need to consider the possibility of long-term pain as an outcome after hernia operations in the decision making prior to operation.

Undoubtedly, hernia, if left untreated, would result in high morbidity and mortality rates [3]. Hence, there is the need for patients with hernia to utilise available health care services to prevent complications. The benefit was that operative outcome for groin hernia repair in women was improved and risk for recurrence reduced by the utilisation of a preperitoneal approach [22]. Among other things, health providers will be able to preserve the integrity of the umbilical hernia repair by avoiding an additional area of weakness in the rectus sheath [23]. Moreover, surgeons will have many choices when selecting an appropriate hernia operation for an individual patient [24].

Early identification and treatment are, therefore, important in reducing complications of hernia. Nonetheless, the utilisation of hernia care would depend on the type, the risk factors, among others. Notably, several factors affect healthcare utilisation, especially by individuals suffering from surgical conditions such as hernia [25]. Kuo *et al.* [26] found that demographic characteristics, clinical characteristics, institutional characteristics, the presence of surgeons and capacity of the hospital were seen as influencing factors on hospital utilisation, and recommended for enhanced education on the importance of hernia surgical decision making. Liu *et al*. [25] analysed age, geographical and seasonal variations in medical service utilisation by patients with inguinal hernia and found that newly diagnosed inguinal hernia cases and outpatient visits were only highest during summer and lowest in eastern Taiwan.

In other instances, lack of knowledge of the importance and availability of surgical services has a negative impact on the utilization of surgical services for hernia. The seeming lack of

knowledge could influence the attitude of women toward access to hernia care [27]. Access to and utilization of any healthcare intervention depends on the attitude of the population toward the same - the population in the Nsawam-Adoagyiri Municipality is not exempted. Tia [28] found that the predominant attitude toward the treatment of inguinal hernia was fear of surgery, followed by adverse effects of surgery, and high hospital cost in the East Mamprusi District of the North-East Region of Ghana.

The influence of predisposing (socio-demographic characteristics) factors on access to and utilization of hernia care constituted risk factors for the recurrence of hernia among patients which included sex, hernia type, hernia size, mode of admission, age, and smoking [29]. Men are 25 times more likely to have groin hernias than women [30]. However, the rate of femoral hernias in women is higher than in men. Data from the Swedish Hernia Registry showed that out of 79,534 elective groin hernia repairs in men, the proportion of femoral hernias was 0.7% and in 5,733 women it was 16.7%, thus amounting to an overall rate of 1.8% [31]. A study found 20% of abdominal wall hernias in the population - 31.2% of men and 14.6% of women were affected among the residents of Kryukovo rural community in Central Russia [6].

Among women, older age, rural residence, greater height, chronic cough, and umbilical hernia were associated with inguinal hernia in the United States [32]. While rates of hernias in women have seen ascendency in recent times, most women, especially in less developed countries perceive hernia to occur in only men [33]. This could also create barriers in the minds of women, which would affect the early identification and treatment of hernia resulting in situations where women report to the hospital in advanced situations of hernia [33]. A study revealed that groin hernia repairs were performed with majority 88.6% been males and

11.4% been females in Denmark [34]. Burcharth *et al*. [34] informed that patients between 0–5 years and 75–80 years constituted the two dominant groups for inguinal hernia repair.

With the influence of enabling factors on access to and utilization of hernia care, a study found that ascites, liver disease, diabetes, obesity, and primary suture repair were significantly associated with increased rates of umbilical hernia recurrence [35]. Inaccessibility to appropriately equipped healthcare facilities has a negative impact on the utilization of surgical services for hernia [27]. A study reported that patients who developed a surgical-site infection within 30 days of discharge had a higher incidence of surgically repaired abdominal hernia; and a hospital encounter for hernia repair, whether inpatient or ambulatory, generated substantial health care charges in the United States [36]. A study assessed factors hindering the practice of day care surgery in a tertiary care centre in South India and found that 32 patients out of 89 were not satisfied with the decision for discharge [37]. Vijayakumar *et al.* [37] noted that the common reasons for dissatisfaction with the decision were persistent pain at operated site, non-availability of health care resources in their locality and unwillingness to travel to far distance to seek for healthcare.

A study observed that need factors affecting healthcare utilization and, by extension, hernia care included duration of symptoms, disability, comorbidity, and panic symptoms among respondents [38]. A study found that common need factors affecting utilisation were situations where patients' condition was chronic and in situations where the patient was disabled [39]. Some researchers suggested that practical implications for providing health services for outpatients and inpatients should be done by verifying the general characteristics of patients [39]. In other fields, a study found that health extension workers providing home visits, perceived importance of ANC and awareness of pregnancy complications were the significant need factors associated with at least one antenatal attendance in Ethiopia [40].

There may be other barriers to how women, especially those in the Nsawam-Adoagyiri Municipality, would want to access and utilize quality hernia care. A study that explored barriers to surgical care for children with hernia revealed that traditional beliefs and gender inequality were considered major issues at Soroti Regional Referral Hospital in Eastern Uganda [41]. Arguably, in communities in low-and-middle-income countries like Nsawam-Adoagyiri in Ghana, the risk of incarceration and complications is much higher due to delay in seeking treatment due to lack of knowledge/awareness among patients, general practitioners, and even general surgeons of the timings of surgery for inguinal hernia similar to what happens in Pakistan [42]. Available evidence shows that one of the challenges facing healthcare providers at the Nsawam Government Hospital is the late reporting of hernia cases which makes treatment a bit difficult [43]. Many people in the Nsawam-Adoagyiri Municipality like other districts and municipalities in Ghana do not know of the risk factors, hence, do not seek timely health care to prevent escalation of the hernia condition.

However, it appears that no study has attempted to establish factors influencing access to and utilization of hernia care among the people of Nsawam in the Eastern Region of Ghana. Additionally, no study seems to have focused on women even as the evidence shows that after groin hernia repair, women have a higher mortality risk than men due to a greater risk for emergency procedure [44]. Consequently, this study assessed factors associated with the utilization of quality hernia care among female adults seeking surgical health care at the Nsawam Government Hospital in the Nsawam-Adoagyiri Municipality of the Eastern Region of Ghana. This was achieved by asking the following questions: What is the proportion of female patients with hernia who utilized hernia care at the Nsawam Government Hospital?

What are the factors associated with the utilization of hernia care among women seeking care at the Nsawam Government Hospital?

2.0. Materials and methods

2.1. Study design

A descriptive cross-sectional study using quantitative methods was used and it involved looking at participants who differed in one key characteristic at one point in time [45]. This approach was used because it allowed data to be collected at the same time from people similar in characteristics, but different in a key factor of interest such as age, income levels or geographic location [46]. The use of a quantitative approach in this study was also appropriate as a large sample size was involved in the study compared to a qualitative method [46]. This design allows for the generalization of findings and also allows for a large number of participants or sample size to be used. The approach was adopted to establish the needed relationship between the dependent and independent variables since the aim was to answer questions like who, how much, what, where, when? This research method was appropriate for this study since a questionnaire was the main research tool and as such, the data could be gathered in numerical form in order for hypothetical conclusions to be drawn [47].

2.2. Study area

The study was conducted at the Nsawam Government Hospital in the Nsawam Adoagyiri Municipality of the Eastern Region of Ghana. Nsawam Adoagyiri Municipality is located approximately 23km from Accra, the national capital [48]. It is situated in the South-Eastern part of the Eastern Region between latitudes 5.45'N and 5.58'N and longitudes 0.07'W and 0.27'W and covers a land area of about 175 square kilometers. The municipality is estimated to have a population of about 86,000, comprising 42,733 (49.7%) males and 43,267 (50.3%) females [49]. The Nsawam Government Hospital was selected for this study because it is one

of the advanced hospitals in Ghana serving most of the residents in Nsawam and its environs with an average daily attendance of 500 patients and about 50 average patient admissions. The hospital has a staff strength of 330, including 12 doctors, 154 nurses, and other support staff who provide preventive and curative health care [50]. Furthermore, the hospital was selected because it is the municipal hospital with a 135-bed capacity serving the population of 133,604, with the doctor-patient ratio of 1:16,000, which is higher than the National Standard of 1:10,000 [51].

2.3. Study population, sample size determination , and sampling

The population of this study involved female clients aged 18 years and above who sought surgical healthcare at the Nsawam Government Hospital in the Eastern Region of Ghana. It has been explained that inguinal hernia presents with lifetime risk of 27% and 3% for women [52]. Thus, the study focused on only women because an estimated 1 in 4 men and 1 in 50 women will require surgery for an incisional hernia during their lifetime [53]. Importantly, data from the hospital showed that averagely, 328 women reported to the hospital seeking health care related to surgical issues every quarter of the year [50].

The sample size of the study was calculated using the Yamane [54] formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n – Sample size

N – Population size (328 estimated monthly surgical cases)

e – Estimated margin of error in sampling (0.05)

Therefore, substituting:

$n = 328 /1 +328 (0.05)^2$

$n =328/1+328 *0.0025$

$n = 328/1+.82$

$n= 328/1.82$

$n=180$

Additionally, 5% of the respondents were added to take care of instances of non-responses = 5/100×180 = 9. Therefore, a total of 189 female clients/patients were selected for the study. Generally, the Yamene's [54] formula applied in the sample size determination was deemed appropriate because the population under consideration was finite. An average estimate of 328 surgical cases were done every month at the study site and it was expected that this would not change during the data collection period. Moreover, a margin of error of 5% provided a sufficient sample size needed to answer the study objective(s).

A consecutive sampling approach was used to recruit participants for the study. This involved the researchers approaching all members of the sampling frame and identifying respondents who qualified at will based on the inclusion criteria. The challenge encountered in recruiting participants was that nine of these participants terminated their participation midway through the data collection process. The challenge was assuaged when other participants showed much interest and willingness to participate in the study.*2.4. Data Collection*

Data for this study was collected using an adopted structured questionnaire which measured the various objectives of the study based on a previous study [55] between May 15th and June 15th, 2022. Section A focused on the predisposing (socio-demographic characteristics) factors of respondents. Section B focused on enabling (health facility) factors. Section C asked

questions related to need (social/community) factors. Section E assessed the proportion of hernia among women using patients' folders. Section F assessed the utilization of hernia care. Respondents answered questions using a 'Yes or No' format. This method of data collection was used because it is not rigid and the sequence of questions allows for data to be collected at one place and analyzed at the same time [56]. Data was collected at the outpatient department (OPD) of Nsawam Government Hospital. The researchers contacted all eligible patients and explained the research purpose to them and to seek for their participation. Questionnaires were administered to them after they had agreed to participate and signed the consent form. This was done daily until the sample size of 189 was achieved. The questions were translated into Twi language which is the common language of the people in the community for those who could not read or write in English language. Both the interviewer-administered and self-administered strategies were applied in the administration of the questionnaires. The self-administered strategy was applied to allow those participants who could read or write in English language to do so. On the other hand, the interviewer-administered strategy was applied to those participants who could not read or write in English language. Each of the questionnaires took an hour to complete.

2.5. Data quality assurance

To ensure the quality of data, the researchers meticulously supervised the two research assistants who collected the data through the administration of the questionnaires. The questionnaire was pre-tested among 10 female clients at Grace Ville Hospital, a nearby hospital. This was done to help eliminate ambiguity and make the questionnaire clear and reliable. To maintain the validity of the study, a well-structured questionnaire with appropriate Cronbach's values of between 0.7-0.9 was used which answered the various

objectives of the study. To ensure the reliability of the study, a standardized questionnaire with already measured inter-rater scales was used for the study.

2.6. Data processing and analysis

A total of 180 questionnaires were coded into the SPSS software after which data cleaning was done by data profiling to remove outliers, duplicates, and irrelevant observations and fixing missing values. The nine incomplete questionnaires were not included in the data analysis. The data observation was compiled and analyzed using STATA version 15. This software was adopted because it is easier to use and it makes an analysis of data faster. Descriptive statistics was used in the summarization of data, specifically, frequency tables and bar charts were generated to describe the basic features of the data. Common inferential statistical tests that were used in the study included the Chi-square test of association to determine if there was any relationship between the dependent and independent variables. This permitted testing of the null hypothesis that two variables of classification, when applied to the same set of entities were independent. Furthermore, bi-variate analysis between socio-demographic characteristics such as respondents' gender, education and marital status was examined to determine possible relationships with utilisation of hernia care. This was followed by a multiple logistic regression to determine the strength of association, reporting adjusted odds ratios and their confidence intervals. All inferential statistical analyses were set at 95% probability level and a p-value of $P< .05$ accepted as significant.

The overall knowledge of respondents was assessed using items derived by summing the score of seven knowledge items. Respondents' correct knowledge of each item attracted a score of 1. The overall score was trichotomized into three levels, thus, those who scored 0 were deemed to have no knowledge. However, respondents who had a score of 1 to 3 were

deemed to have inadequate knowledge while those who scored ≥ 4 were considered to have adequate knowledge. Moreover, respondents' attitude toward the utilization of hernia care was assessed using four items. Respondents were to select whether they strongly disagree = 1, disagree = 2, uncertain = 3, agree = 4, and strongly agree = 5 with each of the four items. A mean attitude score was generated ranging from 1 to 5. A score ≥ 3 was deemed as a good attitude toward the utilization of hernia care while a score ≤ 3 was deemed as a poor attitude toward the utilization of hernia care.

3.0. Results

3.1. Socio-demographic characteristics of respondents

The results showed that overall, 180 women took part in the study, out of the estimated sample size of 189. This gave a response rate of 95.2% (180/189). The results showed that most of the respondents (77 (42.8%)) were in the age range 31-40 years while the least (11 (6.1%)) were aged below 20 years. More than half of the respondents (119 (66.1%)) were married while the least (9 (5.0%)) were divorced. The majority (123 (68.3%)) were Christians, 43 (23.9%) were Muslims while the rest (14 (7.8%)) were Traditionalists. The results also revealed that most of the respondents (61 (33.9%)) had attained primary level of education while the least (27 (15.0%)) had been educated up to the tertiary and junior high levels respectively. The study further revealed that most of the respondents (65 (36.1%)) were traders while the least (50 (27.8%)) were farmers. The results are shown (Table 1 about here).

Table 1: Socio-Demographic Characteristics of Respondents (n = 180)

Variables	Frequency	Percent (%)
Age		
< 20 Years	11	6.1
21 – 30	63	35.0

31 – 40	77	42.8
Above 40	29	16.1
Marital Status		
Married	119	66.1
Single	52	28.9
Divorced	9	5.0
Religion		
Christian	123	68.3
Muslim	43	23.9
Traditionalist	14	7.8
Educational status		
No Formal Education	52	28.9
Primary	61	33.9
Junior/Senior High	27	15.0
Tertiary	40	22.2
Occupation		
Farmer	50	27.8
Public Sector Worker	52	28.9
Trader	65	36.1
Others	13	7.2

3.2. Proportion of hernia among respondents

An analysis was conducted on the proportion of hernia among females in this study who sought surgical services. More than half of the respondents (100 (56.0%)) had had surgery for hernia while the rest (80 (44.0%)) were diagnosed of other surgical conditions. The results are displayed (Figure 1 about here).

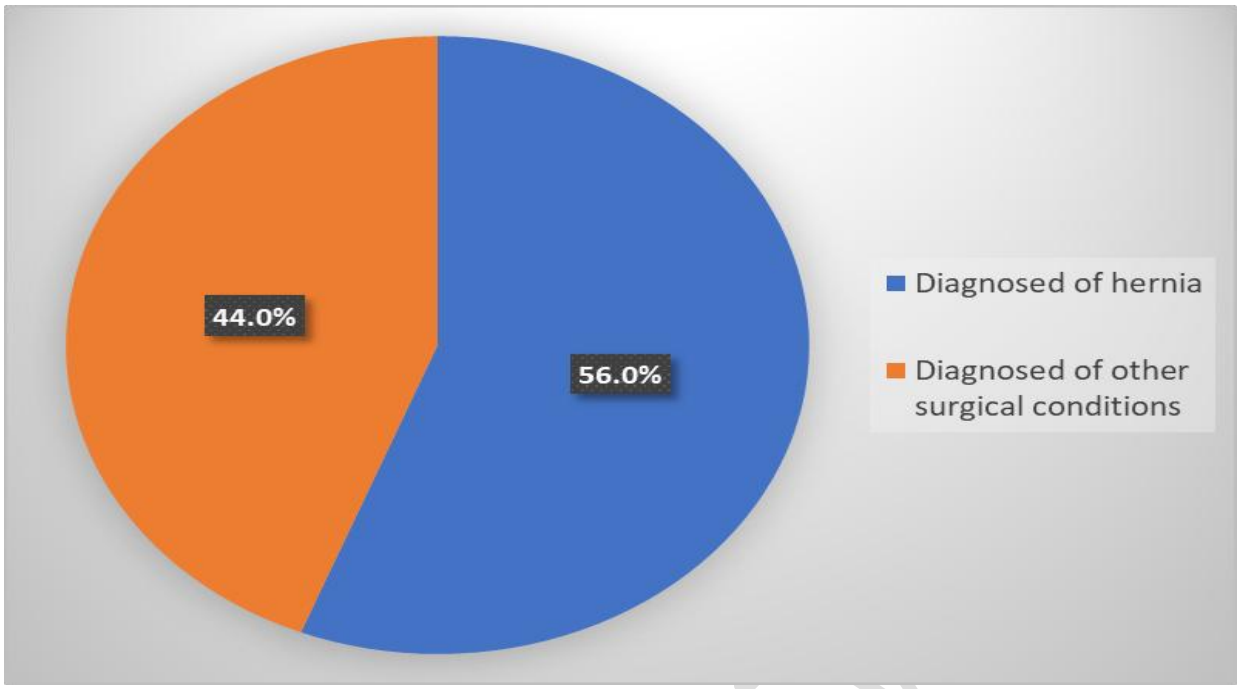

Figure 1: Prevalence of Hernia among respondents.

3.3. Types of Hernia among respondents

The results showed that more than half of the respondents diagnosed with hernia 56% (56/100) presented with inguinal hernia, 32% (32/100) presented with umbilical hernia, while the rest 12% (12/100) presented with incisional hernia. The results are shown (Figure 2 about here).

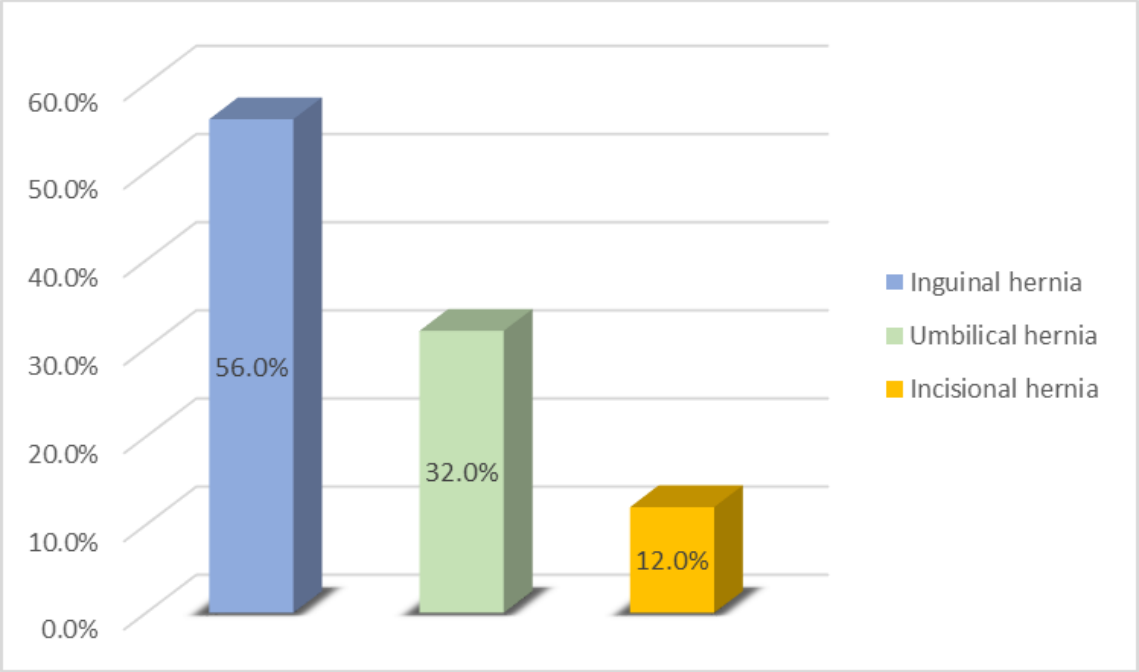

Figure 2: Types of Hernia among respondents.

3.4.Utilization of hernia care among respondents

An analysis was conducted on where respondents sought treatment after the hernia symptom manifestation. Out of the 100 women who admitted having been diagnosed of hernia, the proportion of women that sought treatment at the hospital was 75.0% (pr = 75.0%; 95% CI = 65.3% - 83.1%). The remaining 25% sought hernia care from other providers. The results are shown (Figure 3 about here).

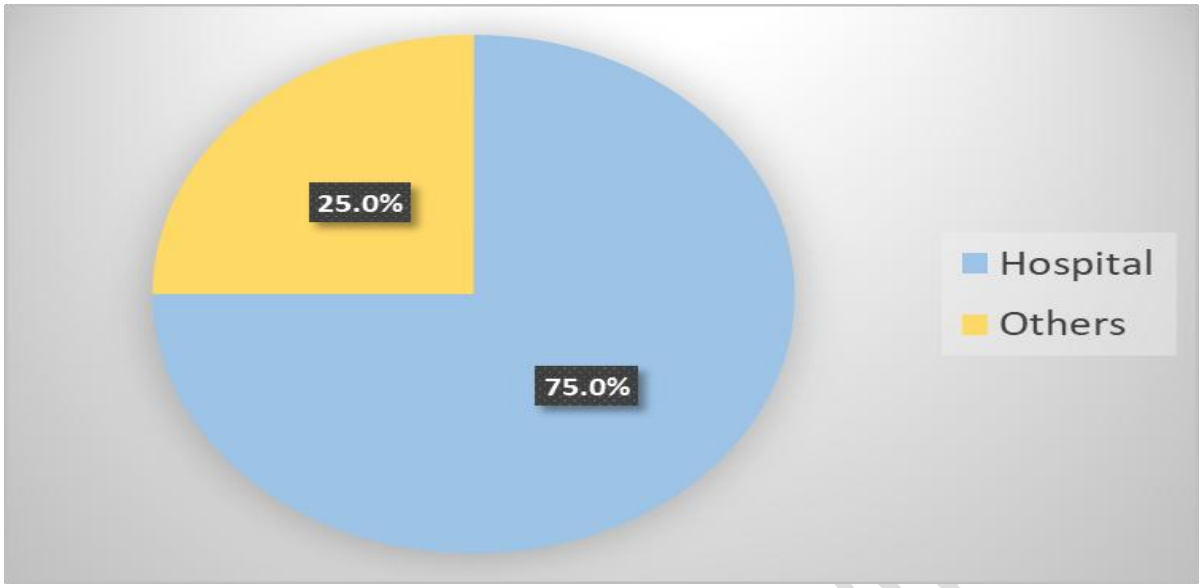

Figure 3: Utilisation of hernia care among respondents.

3.5. Overall level of knowledge of hernia

The proportion of respondents with adequate knowledge of hernia was 49% (49/100). While participants with inadequate knowledge constituted 12% (12/100), those with no knowledge constituted 39% (39/100). The results are displayed (Figure 4 about here).

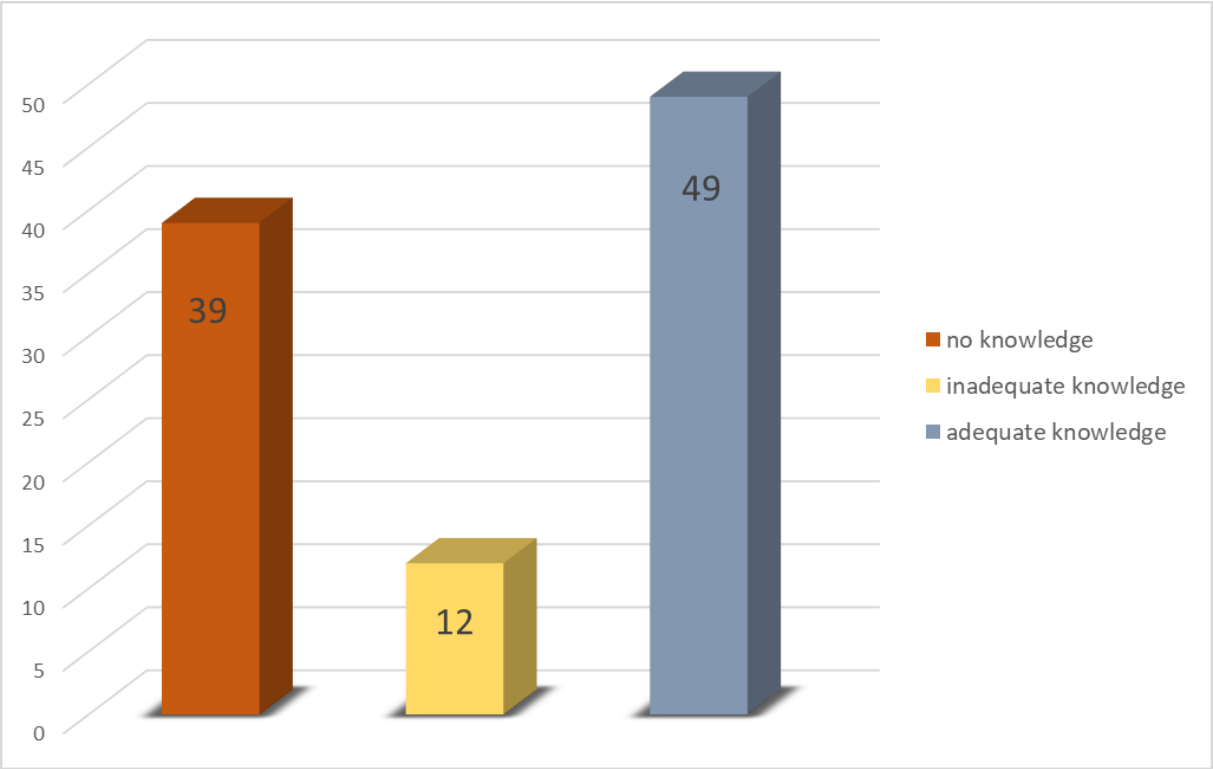

Figure 4: Overall level of knowledge of hernia.

3.6. Chi-square analysis: Association between the overall level of knowledge of hernia and the utilization of hernia care

The results showed that the overall knowledge of respondents was found to be significantly associated with the utilization of hernia care (*P*=.011). The results are described (Table 2 about here).

Table 2: Chi square analysis: Association between overall level of knowledge of hernia and utilisation of hernia care

Variable	**Utilisation of hernia care**		χ^2
	Hospital (n = 75)	**Others (n = 25)**	**p-value**
Overall knowledge of hernia			**0.011***
No knowledge	23(59.0)	16(41.0)	
Inadequate knowledge	11(91.7)	1(8.3)	
Adequate knowledge	41(83.7)	8(16.3)	

*(statistically significant, $P \leq 0.05$).

3.7. The overall attitude towards the utilization of hernia care

The proportion of respondents with a good attitude toward the utilization of hernia care was 86.0% (pr = 86.0%; 95% CI = 77.6% - 92.1%). The rest 14% (14/100) had a poor attitude towards the utilisation of hernia care at the health facility. The results are shown (Figure 5 about here).

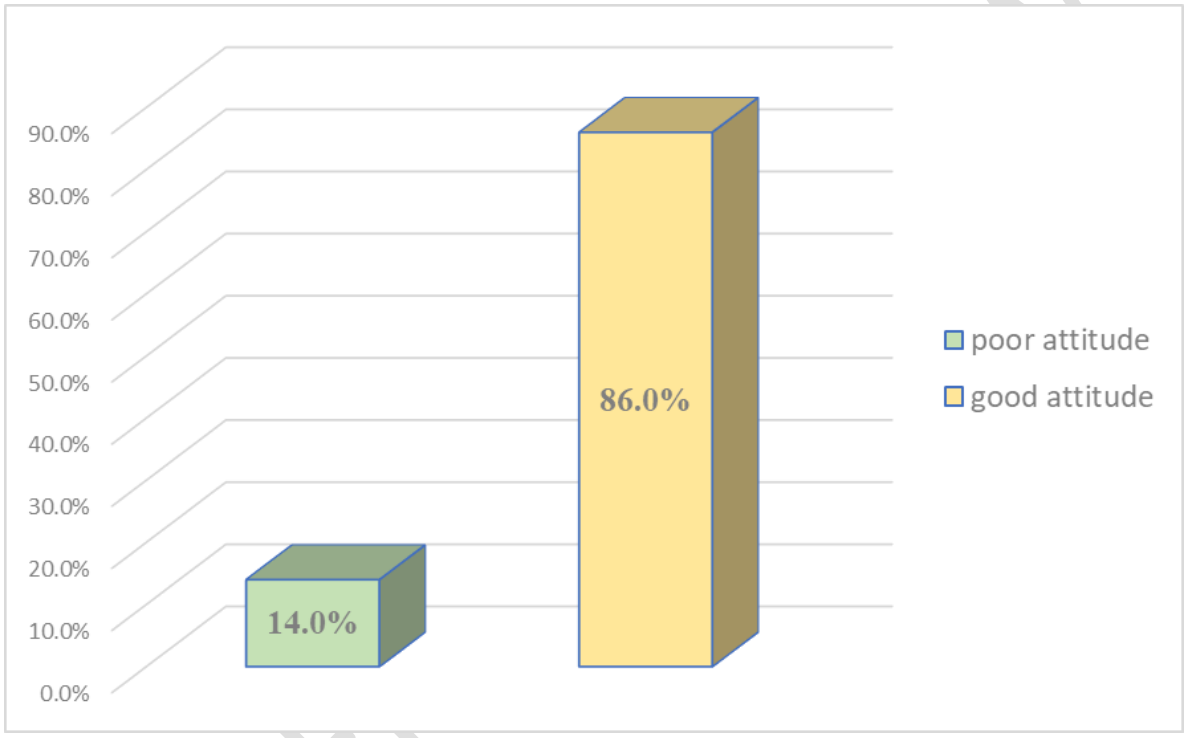

Figure 5: Overall attitude towards utilisation of hernia care.

3.8. Chi-square analysis: Association between attitude and the utilization of hernia care

The results revealed that the respondents' attitude was found not to be significantly associated with the utilization of hernia care (*P*=.745). The results are shown (Table 3 about here).

Table 3: Chi square analysis: Association between attitude and utilisation of hernia care

Variable	Utilisation of hernia care		χ^2
	Hospital (n = 75)	Others (n = 25)	p-value
Overall attitude			0.745
Poor attitude	10(71.4)	4(28.6)	
Good attitude	65(75.6)	21(24.4)	

*(statistically significant, $P \leq 0.05$).

3.9. Chi-square analysis: Association between predisposing (socio-demographic characteristics) factors and the utilization of hernia care

The results showed that the predisposing (socio-demographic characteristics) factors which showed a significant association with the utilization of hernia care included marital status (P=.001), educational level (P = .005), and occupation of respondents (P=.001). The results are displayed (Table 4 about here).

Table 4: Chi square analysis: Association between predisposing (Socio-demographic characteristics) factors and utilisation of hernia care

Variables	Utilisation of hernia care		χ^2
	Hospital (n = 75)	Others (n = 25)	p-value
Age			0.573
Less than 20 years	3(50.0)	3(50.0)	
21-30	27(77.1)	8(22.9)	
31-40	33(76.7)	10(23.3)	
Above 40	12(75.0)	4(25.0)	
Marital status			**0.000***
Married	61(92.4)	5(7.6)	
Single	12(41.4)	17(58.6)	
Divorced	2(40.0)	3(60.0)	
Religion			0.074
Christian	55(80.9)	13(19.1)	
Muslim	16(66.7)	8(33.3)	
Traditionalist	4(50.0)	4(50.0)	
Educational status			**0.005***
No formal education	24(82.8)	5(17.2)	
Primary	18(52.9)	16(47.1)	
Junior/senior high	13(86.7)	2(13.3)	
Tertiary	20(90.9)	2(9.1)	
Occupation			**0.000***
Farmer	25(89.3)	3(10.7)	
Public sector worker	27(93.1)	2(6.9)	
Trader	17(47.2)	19(52.8)	
Others	6(85.7)	1(14.3)	

*(statistically significant, $P \leq 0.05$).

3.10. Perceived enabling factors of utilization among those who utilized hospital services for hernia care

An analysis was conducted on the perceived enabling factors of utilization among respondents who utilized hospital services for hernia care. The results showed that of the 75 respondents who had had hernia surgery, (50 (66.7%)) identified that the high cost of hernia services was a factor affecting the utilization of hospital services. Moreover, more than half

of the respondents (42 (56.0%)) attributed long distance to the hospitals as one factor affecting the utilization of the hospital for hernia care. However, a greater number (70 (93.3%)) identified the negative attitude of the health workers at the hospital as the reason most people did not use hospital services when seeking out treatment for hernia. The level of satisfaction with the treatment received at the hospital was true among (61 (81.3%)) of the respondents as a reason for the utilization of hernia services while (61 (81.3%)) noted that it was true that waiting time at the hospital contributed to reasons most people did not seek quality hernia care at the hospital. The results are outlined (Figure 6 about here).

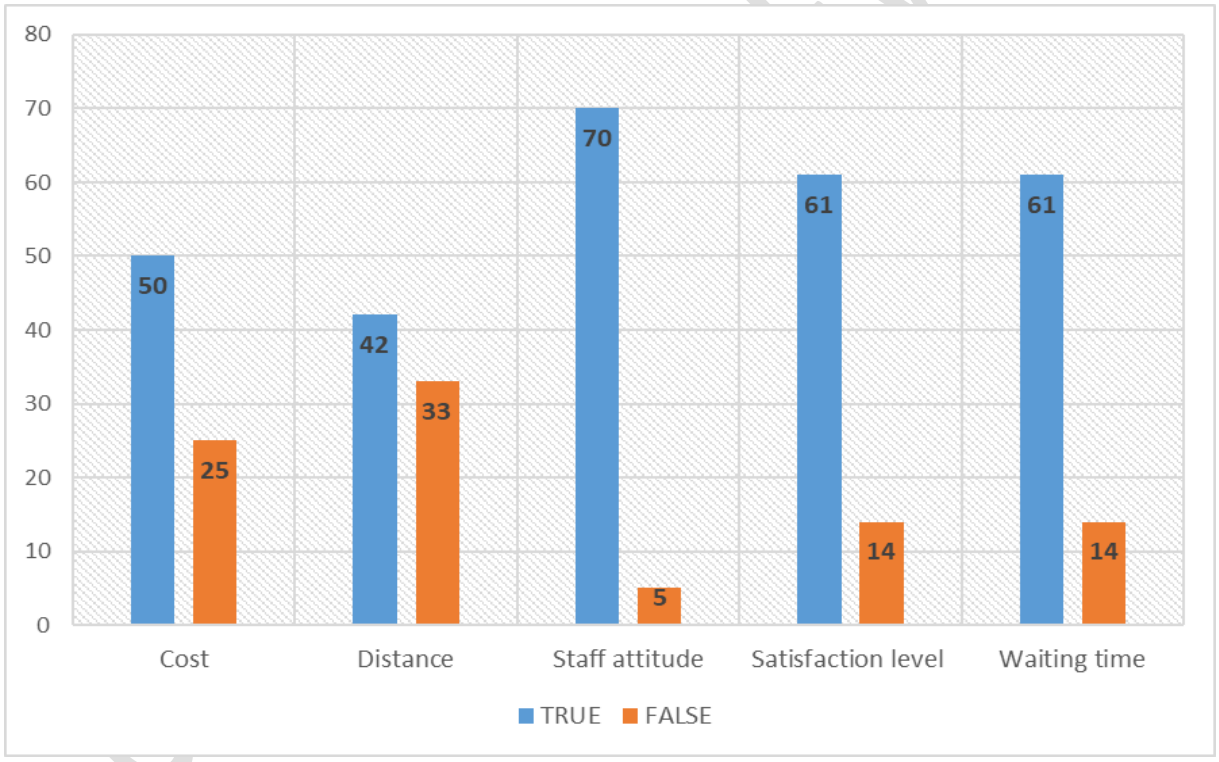

Figure 6: Perceived enabling factors of utilisation among those who utilized hospital services for hernia care.

3.11. Chi-square analysis: Association between need factors and the utilization of hernia care

An analysis was conducted to establish the relationship between need factors and the utilization of hernia care. The results confirmed that respondents' reliance on treatment from traditional medical healers (*P*=.001) and belief in whether or not hernia is a serious condition (*P*= .003) were the need factors found to be significantly associated with the utilization of hernia care. The results are displayed (Table 5 about here).

Table 5: Chi square analysis: Association between Need factors and utilisation of hernia care

Variables	**Utilisation of hernia care**		χ^2
	Hospital (n = 75)	**Others (n = 25)**	**p-value**
Use of over the counter drugs to treat symptoms of hernia			0.549
No	15(83.3)	3(16.7)	
Yes	60(73.2)	22(26.8)	
Reliance on treatment from traditional medical healers			**0.000***
No	50(94.3)	3(5.7)	
Yes	25(53.2)	22(46.8)	
Belief whether hernia is a serious condition			**0.003***
No	47(87.0)	7(13.0)	
Yes	28(60.9)	18(39.1)	

*(statistically significant, $P \leq 0.05$).

3.12. Factors associated with the utilization of hernia care

A binary logistic analysis was conducted to ascertain factors associated with the utilization of hernia care. The results indicated that the odds of utilizing hernia care were significantly reduced by 94% among respondents who were single as compared to those who were married (cOR=0.06; 95% CI 0.02-0.19; *P*=.001). In addition, respondents who were divorced had a

95% statistically significant reduction in their odds of utilizing hernia care as compared to those who were married (cOR=0.05; 95% CI0.01-0.41; *P* = .001). However, after adjusting for all other variables (educational level, occupation of respondents, reliance on treatment from traditional medical healers, belief in whether or not hernia is a serious condition, overall knowledge, and overall attitude), the odds of utilizing hernia care was significantly reduced by 97% among respondents who were single as compared to those who were married (aOR=0.03; 95% CI 0.002-0.20; *P*=.001). The relationship was statistically significant.

Respondents who had had primary education had a significantly 77% reduction in their odds of utilizing hernia care as compared to those who had had no formal education (cOR=0.23; 95% CI =0.07-0.76; *P*=.016). After adjusting all other variables, this association was no longer found to be statistically significant. Utilizing hernia care was significantly reduced by 89% among respondents who were traders as compared to those who were farmers (cOR=0.11; 95% CI=0.03-0.42; *P*=.001). However, after adjusting all other variables, utilizing hernia care was significantly reduced by 97% among respondents who were traders as compared to those who were farmers (aOR= 0.03; 95% CI = 0.003-0.35; *P* =.004). This was significantly associated with the utilization of hernia care.

Respondents who relied on treatment from traditional medical healers had a 93% significant reduction in their odds of utilizing hernia care as compared to those who did not rely on treatment from traditional medical healers (cOR=0.07; 95% CI=0.02-0.25; *P*=.001). Adjusting all other variables, utilizing hernia care was significantly reduced by 89% among respondents who relied on treatment from traditional medical healers as compared to those who did not rely on treatment from traditional medical healers (aOR=0.11; 95% CI=0.02-

0.74; *P* = .024). There was a statistically significant association between this variable and the utilization of hernia care.

The odds of utilizing hernia care were significantly reduced by 77% among respondents who believed hernia was a serious condition as compared to those who believed otherwise (cOR=0.23; 95% CI=0.09-0.62; *P*=.004). However, this association was found not to be statistically significant after adjusting for all other variables.

Respondents with adequate knowledge of hernia had significantly 3.57 times the odds of utilizing hernia care as compared to those with no knowledge of hernia (cOR=3.57; 95% CI=1.32-9.60; *P*=.012). Nevertheless, this association was found not to be statistically significant after adjusting all other variables. The odds of utilizing hernia care were increased by 1.24 times among respondents who had a good attitude toward hernia care as compared to those with a poor attitude (cOR=1.24; 95% CI=0.35-4.36; *P*=.740). After adjusting all other variables, the odds of utilizing hernia care were increased by 4.17 times among respondents who had a good attitude toward hernia care as compared to those with a poor attitude (aOR=4.17; 95% CI=0.29-60.48; *P*=.295). Nonetheless, there was no statistically significant association between this variable and the utilization of hernia care. The results are displayed (Table 6 about here).

Table 6: Factors associated with utilisation of hernia care

Variables	cOR(95% CI)	p-value	aOR (95% CI)	p-value

Marital status				
Married	1.00		1.00	
Single	**0.06(0.02-0.19)**	**0.000***	**0.03(0.002-0.20)**	**0.001***
Divorced	**0.05(0.01-0.41)**	**0.005***	0.09(0.003-2.86)	0.173
Educational level				
No formal education	1.00		1.00	
Primary	**0.23(0.07-0.76)**	**0.016***	0.20(0.02-1.92)	0.162
Junior/senior high	1.35(0.23-7.98)	0.738	0.13(0.01-4.54)	0.263
Tertiary	2.08(0.36-11.92)	0.409	0.10(0.003-2.98)	0.183
Occupation				
Farmer	1.00		1.00	
Public sector worker	1.62(0.25-10.51)	0.613	0.37(0.01-10.09)	0.557
Trader	**0.11(0.03-0.42)**	**0.001***	**0.03(0.003-0.35)**	**0.004***
Others	0.72(0.06-8.20)	0.791	0.17(0.003-9.44)	0.386
Reliance on treatment from traditional medical healers				
No	1.00		1.00	
Yes	**0.07(0.02-0.25)**	**0.000***	**0.11(0.02-0.74)**	**0.024***
Belief whether hernia is a serious condition				
No	1.00		1.00	
Yes	**0.23(0.09-0.62)**	**0.004***	1.22(0.18-8.30)	0.837
Overall knowledge				
No knowledge	1.00		1.00	
Inadequate knowledge	7.65(0.90-65.32)	0.063	13.62(0.61-303.48)	0.099
Adequate knowledge	**3.57(1.32-9.60)**	**0.012***	3.82(0.59-24.69)	0.160
Overall attitude				
Poor attitude	1.00		1.00	
Good attitude	1.24(0.35 – 4.36)	0.740	4.17(0.29 – 60.48)	0.295

p-value is significant at ≤0.05

4.0. Discussion

4.1. Proportion of Hernia

The study revealed a high proportion of hernia (56%) among women in the study group. This confirms findings in a similar study in Pakistan where there were high rates of inguinal hernia among most of the women [10]. The similarity in the findings mostly related to the demographic nature of the respondents and the fact that both studies were conducted in peri-urban communities where the majority of respondents were either engaged in small-scale trading or farming which often required the lifting of heavy foodstuff or farm implements. However, the findings contradicted those reported in a study in Russia where the prevalence of hernia among women was only 14.6% [6]. Variations in findings seen in both studies could be due to the developmental gap. The previous study was done in a developed country as compared to this study which was conducted in a peri-urban community in Ghana where most of the people still do not know about hernia and the need to seek hospital services when it occurs. It also contradicted the findings of a study that found that incidents of hernia in women represented only 0.17% based on 13,138 abdominal CT reports reviewed in a hospital [52]. The high proportion of hernia also confirms the assertion of Andersen's Theory of Healthcare Utilization which asserts that prevalence in utilization is often high in instances where challenges with variables in the construct are identified and addressed [57].

4.2. Utilisation of Hernia Care

The results of utilization of hernia care revealed that the majority of the respondents (75%) sought treatment at the hospital while the rest 25% sought treatment from other sources. The findings contradicted those made in a study that examined factors affecting the quality of hernia care among patients. The study found that most women were not utilizing the services and surgeon factors (such as deficits in knowledge/technique) led to recurrence. These were primary determinants of lack of utilization [58]. Poor quality of hernia care was identified in

another study as the reason for the lack of use of hernia services among most women [59]. The high quality of services provided at Nsawam Government Hospital could explain why utilization of hernia services in the hospital was high (75%)[50]. However, most of these cases might have been reported at their advanced stages.

4.3. Predisposing factors and utilization of hernia care

The results revealed that the marital status and occupation of the respondents were factors associated with the utilization of hernia care. The odds of utilizing hernia care were significantly reduced among respondents who were single as compared to those who were married. Support from partners during marriage has a great impact on the decision to go for hernia services and those who are married seek more hospital-based services than those without spousal support [60,61]. The majority of the respondents in this study were married and that could explain why there was high utilization of hospital services for hernia among the women. Utilizing hernia care was significantly reduced among respondents who were traders as compared to those who were farmers. This finding may be that traders are people who travel around and are "too busy" to spend time at the hospital as opposed to farmers who need to be strong to even go to the farm. Possibly, the proportion of hernia among farmers who do more lifting is higher than among traders who may not engage in heavy lifting. This significant relationship experienced in this study testifies to the assertion of the theory of healthcare utilization that predisposing factors influence healthcare utilization [57].

4.4. Enabling Factors and Utilisation of Hernia Care

The results revealed that the cost of hernia services, distance to the hospital, negative attitude of the health workers, and the level of satisfaction with care received at the hospital were factors perceived to have affected utilization among respondents who utilized hernia care at

Nsawam Government Hospital. The findings confirmed a study that assessed factors hindering the practice of daycare surgery in a tertiary care center in South India where it was revealed that a lower level of satisfaction with general health care negatively affected the utilization of care [37]. However, the findings deviated from a study that did not find any of the factors listed above as enabling factors for quality hernia care utilization among women [35]. The implementation of full-scale insurance services in some countries often leaves situations where patients bear little to no cost of hernia and other medical services whereas, in some settings, patients pay for most elements of all healthcare services [62]. This could explain the variations in the findings made between the previous study and this current study. The findings are also in line with the Theory of Healthcare Utilization where enabling factors influence the level of utilization of healthcare services among patients [57].

4.5. Need Factors and Utilization of Hernia Care

Utilizing hernia care was significantly reduced among respondents who relied on treatment from traditional medical healers as compared to those who did not rely on treatment from them. This is not a surprising association because when the likelihood of going for hospital treatment is reduced, it means the respondents perhaps have an alternative source of assurance of cure and might want to exhaust that option before considering hospital treatment. Individuals who combine traditional medicine with hospital services in the management of their everyday health needs usually consider traditional treatment as their first resort. As the disease state aggravates, their need for hospital services increases and that is when they panic and rush to the hospital facilities, often presenting chronic cases for medical professionals to resolve.

Traditional healers, on the other hand, also give lots of hope to patients of all conditions and not just hernia. They brag about the efficacy of herbs and tout the traditional healing processes as natural and superior to hospital treatment [63]. This phenomenon may feed into the reasons respondents who relied on traditional medical healers had lower odds of utilizing hernia care. There is a need for sensitization of hernia patients at the point of diagnosis, however late or early, to utilize hernia care at the facility. Community outreach programs for traditional medical healers to engage them in the conversation of the utilization of hernia care will go a long way to help improve utilization. A study found that common need factors affecting the utilization of healthcare services were situations where patients' condition was chronic and in situations where patients were disabled [39]. Roberts *et al*. [38] revealed that duration of symptoms, disability among respondents, comorbidity, and panic symptoms were need factors affecting quality hernia care utilization. It also conforms to the assertion by the Theory of Healthcare Utilization that need factors are significantly associated with the utilization of healthcare services [57].

5.0. Conclusion

The main objective of this study was to assess factors associated with the utilization of hernia care among women seeking surgical healthcare at Nsawam Government Hospital. A descriptive cross-sectional design was used for this study employing self-administered and interviewer-administered structured questionnaires that measured the various objectives of the study. Overall, 180 women participated in the study with 56% of hernia cases. This should be a matter of concern to health policy makers and providers. These cases might have reported when the condidtion had advanced and needed emergency surgical intervanetion. A community-based study is likely to unearth more cases that have yet to report at the health facility.

Out of those who had hernia, 75% of them sought hospital services while the rest 25% sought other services. A chi-square independence test revealed that the predisposing factors consisting of marital status, level of education, and occupation of the respondents were statistically significant in their association with the utilization of hernia care. Enabling factors identified included high cost of hernia services, long distance to the hospitals, negative attitude of the health workers, time wasted receiving services, and overall level of satisfaction with services at the hospital. The chi-square independence test also revealed that only the level of satisfaction with services at the hospital was associated with the utilization of hernia services.

The findings will help equip policymakers in both government and non-governmental organizations with the needed information regarding health-seeking behaviors among patients with hernia, which will help in the formulation of policies. There seems to be no policy for hernia services formulated by the Ghana Health Service. The Ministry of Health and the Ghana Health Service should institute measures aimed at addressing challenges such as the negative attitude of personnel toward patients seeking healthcare in general. The management of Nsawam Government Hospital should organize, at least, monthly programs to educate staff on good customer care/relationship marketing [64]. Efforts should also be made to decentralize surgical services through outreach programs to communities without proper hospital setups.

Conversations about the inclusion of the cost of hernia care in the National Health Insurance Scheme (NHIS) can begin among stakeholders and advocacy groups to help poor patients seek care. Community leaders in the Nsawam catchment areas such as the chiefs and other

opinion leaders should engage with the municipal health directorate where educational programs could be organized in the communities to help improve residents' knowledge of the importance of hospital-based treatment for hernia [65]. The findings of this study have implications for other countries with similar challenges in resources to provide comprehensive and free hernia care for the population.

5.1. Limitations of the study and future research

The limitation of the study included the fact that the sample size used was small and this was due to difficulty in reaching most of the qualified women to partake in the study. This was inadequate considering the population of the area and the adjoining districts. It also included the fact that this facility based study was conducted in the only hospital in the municipality. A community-based study would have helped to increase the sample size and help to identify unreported hernia cases among women in the communities. One other limitation was the difficulty in getting respondents because of the COVID-19 restrictions. The findings of this study may also be limited to the study setting, hence, results cannot be used for generalization beyond this population. The findings offer future researchers the opportunity to further expand the scope of the study to delve into areas, including risk factors for the occurrence of hernia in women, community-based study, sources of funding for healthcare, and the level of satisfaction among women seeking surgical services.

Ethical Approval and Consent

Prior to the administration of the questionnaire, the researchers obtained ethical clearance from the Local Ethical Review Committee of the Ghana Health Service with reference number: GHS-ERC:036/03/22. Respondents who were willing to participate in the study were made to sign a consent form. They were assured and accorded confidentiality of the

information they provided as required by ethics. The questionnaire for the study was also designed in a manner that did not reveal the identity or which could be traced to respondents. Participants were made to understand that participation in the study was voluntary. The autonomy of respondents was also maintained. Participants were also made to understand that they would be at liberty at any point to withdraw from the study if they felt the need to do so.

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