Original Article

Knowledge and Perception of Laparoscopic Surgery among Surgical Outpatients in a Nigerian Teaching Hospital

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ABSTRACT

***Background*:** Laparoscopic surgery is the gold standard in developed countries. Challenges in developing countries apart from the cost of instrumentation include a low acceptance level among patients. The consequent low volume of surgical cases debars cost reduction for surgery.

***Objective*:** The aim of this study is to determine the knowledge level and perception of laparoscopic surgery in patients attending the surgical outpatient for the first time in a teaching hospital in Nigeria. We also determined probable factors which affect this.

***Design of the study*:** This was a prospective study carried out on consenting new patients at the surgical out-patient clinic of the surgical out-patient clinic of a Nigerian Teaching Hospital. The questionnaire was administered to consenting patients through a face-to-face interview by non-medical personnel who had been instructed by the investigators. Data collection was on clinic days within the period.

***Results*:** A total of 370 persons were recruited in this study with a male: female ratio of 1:1.79. The age distribution was between 14years and 81 years with a mean age of 44.19. 62.6% had no knowledge of laparoscopic surgery. 108(29.3%) and 260(70.7%) had positive and negative perception respectively. Only 44% of the patients with positive perception acquired information from appropriate hospital personnel. The longer the duration of perceived knowledge by the patients the higher the tendency to have the wrong perception. The level of education was a significant contributory factor to appropriate perception of laparoscopic surgery.

***Conclusion*:** There is a need for public health education in the region to drive this relatively new frontier of surgery to improve our practice and encourage indigenous innovations.

INTRODUCTION

Minimal access surgery (Laparoscopic surgery) is prospected as the future of surgery. It offers the benefits of reduced morbidity, earlier return to work, better pain control, cosmesis and reduced duration of hospitalization among other benefits. The advantage of early return to work is of paramount importance in developing or low income countries where lost days at work translate into lack of income for some families. Consequently minimal access surgery seems to be of immense benefit even in low income countries.

The consequence of the increased patient demand was a competition in the surgical instrument manufacturing sector to produce better, cheaper and more user and patient friendly surgical instruments. Furthermore there is enough volume of procedures for training and to drive the reduction in overall cost of surgery. The patients' demands for minimal access surgery is a function of both knowledge and perception of this innovative technique of surgery.

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In developing and many low income countries apart from numerous challenges such as cost of instrumentation and technology the knowledge of the procedure and perception may be some of the reasons why patients' acceptance and willingness to have laparoscopic approach for relatively simple procedures despite government subsidy on the cost of laparoscopic surgery.

The aim of this study is to determine the knowledge level and perception of laparoscopic surgery in patients attending the surgical outpatient for the first time in a teaching hospital in Nigeria. We also determined probable factors which affect this.

Materials and Methods

Study Design

This was prospective study carried out at the surgical outpatient (SOP) clinic of the gastrointestinal surgery division of the surgery department of the University College Hospital Ibadan.

Study Area

The hospital is a tertiary level facility which serves state (Oyo) primarily but is also a national referral center. The average patient attendance in the gastrointestinal surgery division outpatient clinic is about sixty to seventy patients on the clinic days with about fifteen percent of this population being new referrals without any previous with the gastrointestinal surgery division.

Study Population

The study population included all new referrals (patients) attending surgical gastrointestinal outpatient clinic over a six month period (January to June 2016).

Sampling Techniques and data collection procedures

The patients were approached and after explaining the study and seeking consent, the questionnaire was administered through a face-to-face interview by a non-medical personnel who had been instructed by the investigators. The data were collected on every clinic day which was once a week within the period.

Inclusion criteria

Patient selection included every consenting patient.

Exclusion criteria

Critically ill patients were excluded from the study

Data analysis and Demographics such as age, education level and employment status were obtained. The proportions of patients with variable levels of knowledge of laparoscopy and perception were calculated. Secondary analysis compared proportions across demographics. Odds ratios (OR) and 95% confidence intervals were calculated.

RESULTS

A total of 370 persons were recruited in this study with a male: female ratio of 1:1.79. The age distribution was between 14years and 81 years with a mean age of 44.19. The marital distribution of these patients were 83 and, 257 as single and married respectively while the rest were separated or widowed (Table1).

Table 1: Socio-demographics characteristics

Variables	Frequency	Percent
Age (Years)		
12-30	87	24.2
31-49	152	42.2
50+	121	33.6
Sex		
Male	131	35.8
Female	235	64.2
Marital Status		
Single	83	22.7
Married	257	70.4
Separated	3	0.8
widowed	20	5.5
divorced	1	0.3
other	1	0.3
Religious		
Christianity	269	74.9
Islam	88	24.5

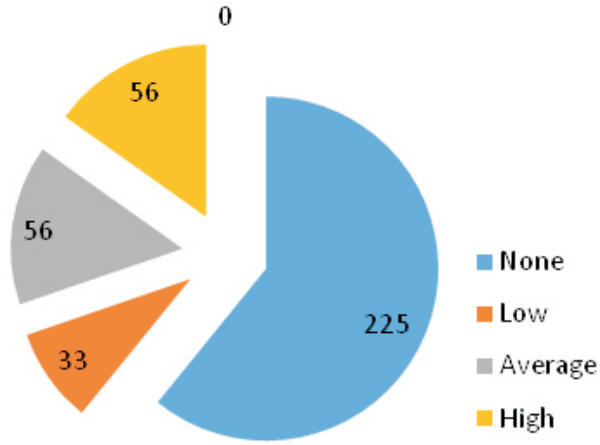
Variables	Frequency	Percent
other	1	0.3
Religious		
Christianity	269	74.9
Islam	88	24.5
Others	2	0.6
Ethnicity		
Yoruba	276	76.5
Hausa	21	5.8
Igbo	48	13.3
Others	16	4.4
Academic qualification		
No formal education	8	2.2
Primary	22	6.1
Secondary	88	24.4
Tertiary	243	67.3

An evaluation of the knowledge base component of the questionnaire revealed that 62.6% had no knowledge of laparoscopic surgery (figure 1). While the analysis of perception and knowledge is in Table 2.

Table 2: Proportion of perception and knowledge about laparoscopy among respondents

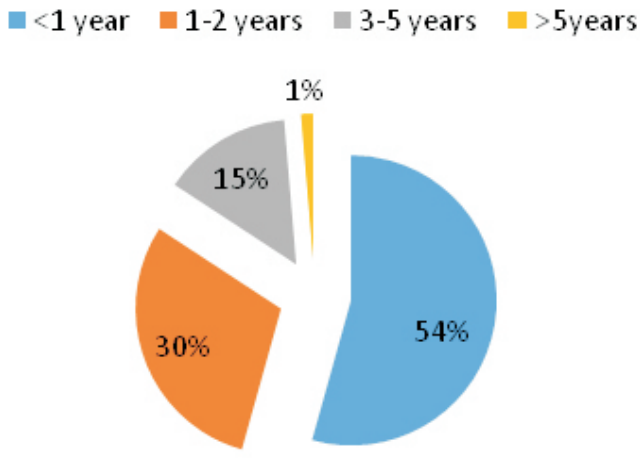
Variables	Frequency	Percent
Perception		
Positive	108	29.3
Negative	260	70.7
Knowledge		
No knowledge	225	60.6
Low knowledge	33	9.0
Average knowledge	56	15.2
High knowledge	56	15.2
Heard the term laparoscopy		
Yes	133	37.4
No	233	62.6
Source of knowledge		
From hospital staff	65	46.4
Other sources	75	53.6

Figure 1: Knowledge



A further analysis of the 145 respondents who had any knowledge of the concept of laparoscopic surgery revealed that 108 (38 males; 70 females) had positive or appropriate perception of laparoscopic surgery. The duration of knowledge prior to the administration of the questionnaire is as in figure 2.

Figure 2: Knowledge Duration



There is an inverse relationship between the duration of the perceived knowledge and the appropriate perception of laparoscopic surgery as demonstrated in figure 3.There is a statistically significant relationship between academic qualification, occupation and knowledge about the perception of laparoscopic surgery as shown in table 3. Predictors of acceptance of laparoscopic surgery

by patients include appropriated knowledge and perception which is demonstrated in table 3.

Table 3: Association between socio-demographic characteristics and knowledge about laparoscopy

Variables	Heard about laparoscopy		Total	X^2	p-value
	Yes	NO			
Academic qualificatior					
No formal education	0 (0.0%)	6(1.7%)	6 (1.7%)	38.105	<0.001
Primary	5 (1.4%)	15(4.3%)	20 (5.7%)		
secondary	11(3.2%)	73(21.0%)	84(24.1%)		
Tertiary	115(33.0%)	123(35.3%)	238(68.4%)		
Total	217(62.4%)	131(37.6%)	348(100%)		
Occupation					
Trading	8(2.3%)	41(11.7%)	49(14.0%)	13.541	0.009
Self-employed	17(4.8%)	35(10.0%)	52(14.8%)		
Employed	72 (20.5%)	89(25.4%)	161 (45.9%)		
Not employed	26(7.4%)	45(12.8%)	71(20.2%)		
Others	7(5.4%)	11(5.0%)	18(5.1%)		
Total	130(37.0%)	221(63.0%)	351(100%)		

Table 4: Binary logistic regression between perception, knowledge and laparoscopy.

Variables	OR	95% C.I for Odd Ratio		p-value
		Lower	upper	
Knowledge				
No Knowledge[a]				
Low Knowledge	11.384	4.203	30.831	<0.001
Average Knowledge	26.871	10.424	69.266	<0.001
High Knowledge	15.874	5.639	44.680	<0.001
Perception				
Positive	7.637	4.597	12.690	<0.001
Negative[a]				

a= reference group

Table 4, shows the result of binary regression. High knowledge about laparoscopy compared with no knowledge (Odds Ratio = 5.64, p = <0.001), having positive perception compared with negative perception (Odds Ratio = 2.36, p < 0.01)) were significant strong predictors on the use of laparoscopy.

DISCUSSION

Following the successful introduction of laparoscopic surgery in America and Europe many patients requested for this surgical approach for their various surgical conditions from their doctors. Consequently many innovations and advances in laparoscopic surgery made were "patient demand" driven. Patient demand is one of the major factors responsible for the development and success of minimal access surgery. Sally Wilde and others demonstrated that patients and their relations play significant roles in the decision making process in surgery. Results of economic evaluation also suggest when a critical volume of surgery is attained the cost of operative procedures become further reduced as the surgical capacity increases. As patients' demands increase so do innovation techniques of surgery. The volume of demands also reduces cost of instrumentation. Philippe Mouret and François Dubois performed their first laparoscopic cholecystectomies in the late 1980s in France. By 1990 Dubois had performed 220 procedures with minimal complications. Consequently laparoscopic cholecystectomy spread from Europe to North America and the United States. The demand for laparoscopic surgery was a major factor in the advances made in minimal access surgery.

There have been several studies on the feasibility of implementing laparoscopic procedures in resource-poor countries and how to overcome the challenges involved . There is a strong association between patients' knowledge, perception and demand for laparoscopic surgery. A fundamental understanding of the concept of knowledge would be in terms of concepts like truth, belief, justification and

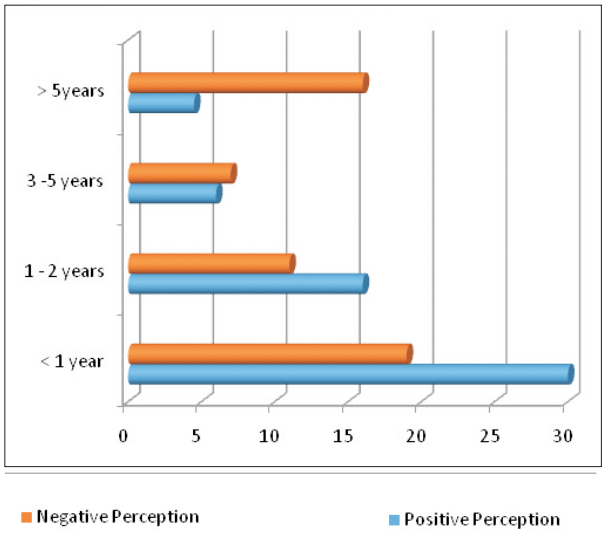
reliability. Thus perception is a derivative of knowledge. The major limitations to laparoscopic surgery in our setting in the reference hospital are patients' awareness, acceptance and the cost of the procedure. Where there is a low level of or negative perception of the procedure the demand for surgery is low, the overall cost of surgery is high because of the prolonged 'down' time of equipment and facilities.

The results in this study demonstrate that the level of knowledge of laparoscopic surgery in the index population is low. 61.1% had no knowledge of laparoscopic surgery while 9% and 30% had low and above knowledge levels respectively. Unlike a study in Korlebu hospital in Ghana where the older population i.e. 50 years and above are more likely not to have appropriate knowledge there is no significant association with the ages of the respondents and the appropriate perception of laparoscopic surgery. 47.5% of respondents with tertiary education had "average and above" levels of knowledge of laparoscopy while 0% and 25% with no formal education or secondary education respectively had any knowledge. There was a significant association between knowledge level and appropriate perception of laparoscopic surgery.

The main economic activities engaged in by the Ibadan population include agriculture, trade, public/civil service employment, factory work, service sectors and artisans. These jobs were subsequently reclassified into four broad groups (Trading/Self-employed/Employed /Others) with the distribution as (13.8%/ 15.1%/45.6%/5.5%) respectively. In view of this job distribution, analysis of knowledge revealed that the population with the highest proportion of acceptable levels of knowledge are those in paid employment which may be related to their educational status as corporate or government employees (Table 3).

Contrary to expectation patients with less than a year's awareness of the laparoscopic surgery had a more positive concept of this surgical technique (Figure 3).

Figure 3



CONCLUSION

The low demand for laparoscopic surgery despite the availability of the facility may be due to the low level of knowledge of the procedure. Secondly there is a significant level of negative perception due to misinterpreted information among patients. There is a need for public health education in the region to drive this relatively new frontier of surgery to improve our practice and encourage indigenous innovations. Consequently if the patient volume increases the cost of surgery reduces.

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