



## DETERMINANTS OF ACCEPTANCE OF LAPAROSCOPIC SURGERY AMONG RESIDENTS IN PORT HARCOURT, NIGERIA

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### ABSTRACT

**Background:** Modern surgical practice in the last 15 to 20 years has witnessed established efficacy and safety of laparoscopic surgery. Patients' or public perception of laparoscopic surgical procedures do affect patronage, and goes a long way to determine success of the practice.

**Aim:** To ascertain the determinants of acceptance of laparoscopic surgeries among residents in Port Harcourt, Nigeria.

**Materials and Methods:** A cross sectional study of four hundred and ninety-three respondents was conducted. Self-administered semi-structured questionnaires were distributed over a period of three months in Port Harcourt in 2018, using multi-stage sampling method. Data obtained was analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0.

**Results:** Sixty-six-point nine percent (66.9%) of respondents have not heard about laparoscopic surgery previously. Forty-four percent of respondents were willing to accept and pay for laparoscopic surgery in Port Harcourt. Only 1.2% were willing to pay more than ₦300,000.00 (\$860) for most laparoscopic general or gynaecologic procedures.

**Conclusion:** Less than half of the respondents have heard and were willing to accept laparoscopic surgery in Port Harcourt. Younger respondents with more access to information dominated the pool of acceptors, hence more need to be done using various methods of information dissemination to improve acceptance.

**Keywords:** Determinants, Acceptance, Laparoscopic Surgery, Port Harcourt, Nigeria.

### INTRODUCTION

Surgical practice in the last 15 to 20 years has witnessed established efficacy and safety of laparoscopic surgery as reported by many researchers. Clegg-Lamprey & Ladipo defined minimally invasive surgery (MIS) as the achievement of therapeutic surgical

objective by the least stimulus so that metabolic, cardiorespiratory and physiologic effects are minimized. Laparoscopic surgery is a form of minimal invasive surgery where the site of diagnostic and therapeutic interest is the peritoneal cavity. The benefits of laparoscopic surgery accrue to patient





and to the surgeon are well known.

The disadvantages of laparoscopic surgery were also documented by Clegg-Lampsey & Ladipo with some peculiar challenges as seen in West African sub-region. However, over the years, citizens of this same sub-region on weekly and monthly basis, have been trooping down to countries where these services are offered -Israel, Germany, Dubai, United Kingdom, South Africa, and even India, etc. for medical tourism, contributing to huge capital flight.

Public or patients' perception to a large extent affect patronage and the outcome of laparoscopic surgery. According to Afuwape & Ayandipo, a low public perception leads to a low demand for the procedure, hence low case turn-over and a high cost of surgery. Lee et al. compared the perceptions of 102 healthy younger and middle-aged women patients on cosmesis in laparo-endoscopic single-site surgery and recommended that physicians should discuss and consider laparo-endoscopic single-site surgery in middle-aged women. Fransen et al. observed among Dutch patients and public that 80% preferred single port laparoscopy to conventional laparoscopy. It was observed in Ghana that though laparoscopy has become the gold standard for many surgical cases in the developed countries, it is still rarely practiced in the developing countries due to high cost. Ninety-five per cent of the patients preferred laparoscopy due to less postoperative pain and faster recovery and 78% of them were willing to pay more for laparoscopy. Adisa et al. in Nigeria reported improvement in acceptance of laparoscopic

procedures among patients and co-workers following local adaptation techniques which reduced cost with a 2.2% conversion rate.

Ternovits et al. reported that the dominant reason for choosing a type of surgical procedure was based on efficacy and lower risk of complications. Similar views of safety and effectiveness were expressed as main reasons for surgical preference as reported by Autorino. Familiarity with open surgery as a reason for preference was reported by Gyedu et al. Other determinants in Gyedu et al. study include city versus village dwellers; having salary paying jobs; and older age group (>45years). It was reported that patients' previous experience, their income, and less post-operative complication are some determinants of preference. However, Hernandez et al. stressed the hope that shorter recovery time and productivity gains experienced with laparoscopic surgery could translate to less cost.

It is based on the above, that this study sought to ascertain the determinants of public acceptance of laparoscopic surgery in Port Harcourt Nigeria with the aim of ascertaining public knowledge and perception on laparoscopic surgery in Port Harcourt; establishing the factors affecting public perception on laparoscopic surgery in health facilities in Port Harcourt; assessing willingness of members of the public to pay for laparoscopic surgery in health facilities in Port Harcourt; and making useful recommendations for advancement of laparoscopic surgery practice in Port Harcourt.



### MATERIALS AND METHODS

The study was carried out in public facilities (fast food eateries, state secretariat, university of Port Harcourt, University of Port Harcourt Teaching Hospital, etc.) in Port Harcourt, the capital of Rivers State. It was across-sectional study among members of the public who gave consent for inclusion in the study. The minimum sample size for the survey was determined using the formula developed by Yaro Yamen based on estimated population of Port Harcourt inhabitants taken to be 1,865,000 projected from 2006 census, as reported by Ovunda<sup>23</sup>. Using the formular

$$n = \frac{N}{1 + Ne^2}$$

where n = minimum sample size, N = Total population size and e = desired precision/level of significance, usually 5% (0.05) at 95% Confidence Interval (CI). This gives 399.9 which can be approximated to 400. To cater for 10% non-response or inappropriately completed questionnaires, 10% of 400 = 40; 400 + 40 = 440. Primary data was obtained using self-administered semi-structured questionnaires distributed with a one-page consent / information sheet on laparoscopy. The questionnaire was developed by the authors and validated after due scrutiny. The contents of the questionnaire were: socio-demographic characteristics of respondents; information on public awareness on laparoscopic surgery; willingness to accept and pay for laparoscopic surgery in Port Harcourt (including comparing open and laparoscopic surgeries); and reasons for preference of laparoscopic surgery. A multi-stage sampling method was adopted, with the convenience sampling method used at

the site of administration of questionnaires: the city of Port Harcourt was divided into four (4) strata using major landmarks - the East West Road and the Aba Road dividing population into groups of similar socio-economic status; a list of identified public places in each stratum was made and random selection was done from the lists identified public places; then field officers were sent with questionnaires to selected public places in the strata over a period of three months in the year 2018. Though 500 questionnaires were administered, approximately 493 were retrieved. Data was collated and analyzed for demographics, awareness, willingness to accept, willingness to pay and reasons for acceptance of laparoscopic surgery, using the Statistical Package for the Social Sciences (SPSS) version 20.0.

### RESULTS

A total of 493 respondents from different walks of life completed the survey (answered  $\geq 90\%$  of the questions). The mean age of the respondents was 28.58 $\pm$ 5.77. Fifty-one-point five percent were males and female respondents were 48.5%. Other demographic characteristics are summarized in Table 1.0.

**Table 1:** Socio-Demographic Characteristics of Respondents.

Variables	Frequency	Percentage
<b>Age</b>		
16- 24 Years	50	10.1
25- 34 Years	190	38.5
35 - 44 Years	175	35.5
45 - 54 Years	36	7.3
55 - 64 Years	39	7.9
65 Years and Above	3	.7
<b>Sex</b>		
Male	254	51.5
Female	239	48.5
<b>Occupation</b>		
Civil Servant	136	27.6
Business	138	28.0
Teaching/Lecturing	91	18.5
Law Practice	5	1.0
Engineering	35	7.1
Nursing	16	3.2
Student	72	14.6
<b>Total</b>	<b>493</b>	<b>100.0</b>

On public awareness, it was observed that 163 (33.1%) knew or have heard about laparoscopic surgery before the survey while majority(66.9%) of the respondents had not heard of it before. While gender of participants was not significant predictors of respondents' awareness of laparoscopic surgery ( $p = 0.386$ ;  $p > 0.05$ ), age was shown to be predictors of respondents' awareness of laparoscopic surgery ( $p = 0.000$ ;  $p < 0.05$ ).

Some 10.3% became aware of laparoscopy in the hospital, 7.1% from books and journals, and media was the source of laparoscopic surgery awareness for 15.6% of the respondents. About half (45.6%) affirm that they would not allow their relative to undergo laparoscopic surgery if offered in Port Harcourt, however 54.4% were ready to approve of their relative undergoing laparoscopic surgery offered in Port Harcourt when the need arises.

Reasons given for not allowing their relative to undergo laparoscopic surgery in Port Harcourt were fear of complication (14.6%); fear of cost (9.5%); and lack of trust in the healthcare system (20.3%). Amidst these respondents' opinion: 167 (33.9%) agreed, and 129 (26.2%) strongly agreed that laparoscopic surgery is better than open surgery; while 82 (16.6%) strongly disagreed, and 115 (23.3%) disagreed(see table 2.0).

**Table 2:** Public Awareness on Laparoscopic Surgery

Variables	Frequency	Percentage
<b>Known or heard about Laparoscopic Surgery</b>		
Yes	163	33.1
No	330	66.9
<b>Source of Laparoscopic Surgery awareness</b>		
Hospital	51	10.3
Books/Journal	35	7.1
Media	77	15.6
None	330	67.0
<b>Allow relative to undergo Laparoscopic Surgery in Port Harcourt</b>		
Yes	268	54.4
No	225	45.6
<b>Reason given not to allow relative do Laparoscopic Surgery in Port Harcourt</b>		
Fear of Complication	72	14.6
Fear of Cost	47	9.5
Lack of Trust	100	20.3
None	274	55.6
<b>Laparoscopic surgery better than open surgery</b>		
Agree	167	33.9
Strongly agree	129	26.2
Strongly disagree	82	16.6
Disagree	115	23.3
<b>Total</b>	<b>493</b>	<b>100.0</b>

Two hundred and twenty-five respondents (45.6%), would not allow laparoscopic surgery on their relatives in Port Harcourt (had negative perception on laparoscopic surgery), while 268 (54.4%) were positive.

**Table 3:** Willingness to accept and pay for Laparoscopic Surgery in Port Harcourt

Variables	Frequency	Percentage
<b>Willingness to pay for Laparoscopic Surgery if offered in Port Harcourt</b>		
Yes	217	44.0
No	57	11.6
Not Sure	219	44.4



Almost half (44.0%) of respondents were willing to accept and pay for laparoscopic surgery if offered in Port Harcourt and 11.6% were not willing to accept and pay (see table 3.0). Meanwhile nearly half of respondents (44.4%) were not sure if they would accept and pay for it. Considering how much the respondents were willing to pay for common surgical procedures (see table 4.0). Forty-point six percent (40.6%) of respondents were willing to pay between ₦10,000.00 - ₦100,000.00 (\$30 - \$300) for open appendectomy and 38.1% were willing to pay the same for laparoscopic appendectomy. Only 1.2% were willing to pay more than ₦300,000.00 (\$860) for laparoscopic appendectomy. Similar figures apply for hernia surgery, gallbladder surgery, weight reduction surgery, fibroid and ovarian surgeries.

**Table 4:** Comparing Willingness to Pay for Different Open and Laparoscopic Procedures

S/No	Amount	Procedures	Open Surgery		Laparoscopy	
			(%)	% of respondents willing to pay	(%)	% of respondents willing to pay ₦300,000.00 (\$860) and above
1	.. ..	Appendectomy	40.6	0.4	38.1	1.2
2	₦10,000 - 100,000 (₦301,000 and above)	Hernia Surgery	38.7	0.4	37.1	0.4
3	₦10,000 - 100,000 (₦301,000 and above)	Gallbladder Surgery	41.4	0.6	41.5	0.6
4	₦10,000 - 100,000 (₦301,000 and above)	Weight Reduction Surgery	37.5	0.8	36.1	1.0
5	₦10,000 - 100,000 (₦301,000 and above)	Fibroid Surgery	40.0	0.4	39.2	0.4
6	₦10,000 - 100,000 (₦301,000 and above)	Ovarian Surgery	40.9	0.4	39.4	0.4

When participants were asked about the advantage of laparoscopic surgery that will make them to prefer it (see table 5.0), 7.9% pointed to less complications; 23.9% said less pain after surgery; small scar or wound mark (cosmesis) was affirmed by 11.0%; and 27.4% implied early recovery and discharge from hospital, while 147 (29.8%) respondents didn't know. High cost of laparoscopic surgery was mentioned by 26.3% of respondents as being reason why they will avoid the service; 31.6% would avoid laparoscopic surgery due to fear of complications; and 42.0% affirmed that lack of experienced surgeon could make them to avoid laparoscopic surgery.

**Table 5:** Respondents' Reasons for Preference of Laparoscopic Surgery

Variables	Frequency	Percentage
<b>Advantage of Laparoscopic Surgery that will make respondents prefer it</b>		
Less Complication	39	7.9
Less pain after surgery	118	23.9
Small scar or wound mark (Cosmesis)	54	11.0
Early recovery and discharge from hospital	135	27.4
Don't know	147	29.8
<b>Reasons to avoid Laparoscopic Surgery</b>		
High cost	130	26.4
Fear of complication	156	31.6
Lack of experience Surgeons	207	42.0
<b>Laparoscopic Surgery offered in respondents' hospital</b>		
Yes	28	5.7
No	130	26.3
Don't know	335	68.0
<b>Total</b>	<b>493</b>	<b>100.0</b>

## DISCUSSION

Awareness of respondents on laparoscopic surgery was 66.9% in this study compared to 37.4% in a study carried out by Afuwape & Ayandipo in Nigeria and 3% in Ghana study. However, the other studies were hospital-based while this study was done among hospital and non-hospital members of the



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public. Awareness on laparoscopic surgery in Port Harcourt seems better compared to the above sited areas. A viable explanation for this difference could be the cosmopolitan nature of the oil city of Port Harcourt and the awareness earlier created by the pioneers of laparoscopic surgery in Port Harcourt. Elsewhere in the world studies compare patients' knowledge and perception on open surgery, laparoscopic and robotic surgeries as reported by Irani et al.

About half (45.6%) of respondents, had negative perception on laparoscopic surgery while 54.4% were positive. This demonstrates an improved perception when compared to the study by Afuwape & Ayandipo, where the perception was positive in 29.3% and negative among 70.7% of respondents. However, that as much as 45.6% had negative perception on laparoscopic surgery suggests that there is still need to improve on information dissemination to the public on this issue. Majority of the respondents were of the opinion that laparoscopic surgery is better than open surgery which is similar to the findings among Ghanaians by Gyedu et al., though with a higher percentage of preference for laparoscopic surgery.

The findings of respondents showing willingness to accept and pay for laparoscopy indicate a positive prospect for laparoscopic surgical practice in Port Harcourt, with a large pool of public opinion waiting to be swayed. The observation that a tiny fraction of respondents was willing to pay ₦300,000.00 (\$860) and above for laparoscopic surgical procedures is however

unhealthy for sustainability of the practice of laparoscopic surgery. Possible reasons for this could be poor value attachment to expected benefits; poor appreciation of costs involved and benefits; or outright lack of ability to afford.

Reasons given for negative perception included fear of complication, fear of cost, and lack of trust in the healthcare system. The lack of trust on the Nigerian health system is a major handicap to implementation of recent advances in surgical practice. Similar findings were reported by Gyedu et al.<sup>17</sup> Cost was also a factor in Ibadan study where Afuwape & Ayandipo<sup>14</sup> drew a direct relationship between perception and knowledge on laparoscopic surgery. However, they concluded that those who had less than a year knowledge of laparoscopic surgery seems to have more positive perception. The advantages of laparoscopic surgery that made majority of respondents to prefer it include early recovery and discharge from hospital; less pain after surgery; small scar or wound mark and less complication. These findings are similar to earlier reports.

Stemming from the findings of this study, the following recommendations therefore would serve to improve practice of laparoscopic surgery in Port Harcourt: public enlightenment on this new method of surgery to create more awareness; equipment and instruments for laparoscopic surgery should be provided in more centers by governmental and non-governmental investors. In addition, opportunities should be provided for training and retraining of more specialist surgeons in the field of



laparoscopic surgery; and dedicated training centers should be established by government and or private investors either directly or through institutional collaboration.

### CONCLUSION

Willingness to pay was low, and it is an issue of public perception and value for money. Laparoscopic surgical practice may still thrive if more awareness is created to improve public perception. This could make more people to be willing and ready to patronize the new improved way of surgery. The lack of trust in the health system, fear of cost and complications can be addressed if government and private investors improve on the available health system, including investing in manpower and new generation equipment and instruments for laparoscopic practice. This will help to improve on the number of patients who desire to have the procedures; reduce cost; improve the skills of surgeons; and over the course of time reduce the negative concerns of the public on laparoscopic practice.

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