Quest Journals
Journal of Medical and Dental Science Research
Volume 8~ Issue 7 (2021) pp: 71-78
ISSN(Online) : 2394-076X ISSN (Print):2394-0751
www.questjournals.org

Research Paper

Determinants of Satisfaction with Anesthesia among Post Operative Patients in UNIOSUN Teaching Hospital, Osogbo, Osun State, Nigeria

[1]BOLUJO, Bukola Oyabola, [2]POPOOLA, Rabiu O., [3]AKINWALE, Oladayo Damilola, [4]OJO, Elizabeth Olubunmi
[1](Babcock University, Ilishan-Remo, Ogun State)
[2](Babcock University, Ilishan-Remo, Ogun State)
[3](UNIOSUN Teaching Hospital, Osogbo, Osun State)
[4](Babcock University, Ilishan-Remo, Ogun State)
Corresponding Author: BOLUJO, Bukola Oyabola
Babcock University, Ilishan-Remo, Ogun State

Abstract: *Patient satisfaction as one of the indicators for quality of health care provision is the degree of meeting patients' anticipation and an important component and quality indicator in anesthesia services. Patients' satisfaction can be affected by anesthetist- patient interaction, Perioperative anesthetic management and postoperative follow up. Hence, this study examined the determinants of satisfaction with anesthesia among post operative patients in UNIOSUN Teaching Hospital, Osogbo, Osun State. The study adopted descriptive research survey design. The sample consisted of 183 post - operative patients using convenient sampling technique. A self-developed, structured questionnaire was used to collect data with reliability index of 0.79 at 0.05 level of significance. Data were collected and analysed using descriptive statistics of frequencies and percentages and inferential statistics of chi-square, regression and correlation coefficient at 0.05 level of significance. The result from the study revealed that more than half 103(56.3%) of the respondents had major surgery with regional anesthesia 99(54.1%), 78,(42.6%) had ASA III status, 66(36.1%) had 1-2 hours duration of surgery and 101(55.2%) had 3-4 hours before recovery from Anesthesia. The result from the study also revealed 53.8% level of satisfaction of patients with anesthesia and average knowledge (51.4%) of anesthesia among the respondents. Determinants of patients' satisfaction observed from the study include clinical variables like type of surgery, types of anesthesia, ASA status duration of surgery, duration of recovery from anesthesia. Moreso, there is a significant relationship between socio-demographic characteristics of the respondents, knowledge of anesthesia and level of satisfaction with p-value less than 0.05 level of significance. This study concluded that level of satisfaction with anesthesia and knowledge of the respondents about anesthesia was moderate. Socio-demographic characteristics of the respondents, Knowledge of anesthesia, ASA status, duration of surgery, duration of recovery from anesthesia are determinants of patients' satisfaction with anesthesia. Thus, it is recommended that anesthetist need to establish a good anesthetic review with their patient pre operatively and treat post operative anesthesia related complications adequately to improve patients' satisfactions.*

Keywords*: Anesthesia, Determinants, Patients, Post-Operative, Satisfaction*

Received 06 July, 2021; Revised: 18 July, 2021; Accepted 20 July, 2021

I. INTRODUCTION

Patient satisfaction is the degree of fulfilling patients' anticipation which is an important component and quality indicator in anesthesia service as well as indicator for quality of health care provision. Patients' satisfaction can be affected by anesthetist- patient interaction, Perioperative anesthetic management and postoperative follow up. Measuring the degree of patient satisfaction can be achieved with a variety of tools such as post operative visits and questionnaires [1][2][3]. Many factors contribute to patient satisfaction including accessibility and convenience of services that depend upon institutional structures, interpersonal relationships, competence of health professionals and patient expectations [4]

Poor quality of anesthesia services may discourage patients from using available services because health concerns are among the most important aspects of human concerns [5].Surgical and anesthetic procedures may initially negatively affect a patient's quality of life, producing a sensation of discomfort, even in the absence of specific complications [6]. In addition, poor postoperative recovery may lead to increased hospital costs and decreased patient satisfaction [7]. Therefore, anesthesiologists seek techniques that can provide high-quality recovery, minimize complications, and reduce the time to return to daily activities [8]. However, patient satisfaction explains the balance between expectations and perceptions of what was received. If there will be any concern for patient scheduled for anesthesia and surgery, peri-operative staff must continue to identify, monitor and modify factors that may improve patients' condition [3]. Patient satisfaction with anesthesia services remains the best way to assess the outcome from the patients' point of view especially during the preoperative and intra operative periods [9].

There is inconsistency regarding patient satisfaction report which may be attributed to differences in institutional structures, interpersonal relationships, competence of health professionals, patient expectations and preferences, as well as variations in tools that are used for data collection [6]. For all patients, and also for the physician's sake, every medical approach must cause more good than harm, and this is the basis for all medical practice [6]. Thus, every time a decision is made, medical practice should require balancing of medical approaches against patients' problems, in order to prevent errors and ensure patients' satisfaction with the procedure including administration of anesthesia before, during and post-operatively [10]. The anesthesiologist-patient relationship is established during the preoperative visit, which is an occasion at which physicians and patients examine each other [11]. The preoperative visit is the best, if not the only opportunity to provide patients with correct information about the anesthetic procedure and minor side effects that are likely to occur [12]. Studies on knowledge, attitudes and concerns regarding anesthesia, as well as regarding anesthesiologists' image have suggested that talking to patients during the preoperative visit can enhance their confidence in the anesthetic procedure [12].

Andemeskel et al. [13] reported that measuring patient satisfaction has become a parameter of the continuous quality assessment and improvement in anesthesia services. however, moderate level of satisfaction was observed among the patients as they described better staff-patient relationship and low fear and concern related to anesthesia and surgery was observed. but information provision about anesthesia and surgery was low [13]. According to [14], anesthesia and surgery have a lot of influence on the patient and their immediate family and are considered stressful experiences that threaten the stability of a patients. Irrespective of the nature of the surgery there is always some level of anxiety, emotional instability, and fear for the patients and their family members [14]. Nevertheless, anesthesia also contribute to the level of pains, anxiety and discomfort exhibited by the patient including unfamiliar hospital environment, separation and possibility of deformity or loss of body part [15][14].

Moreover, economic burden is also part of dissatisfaction expressed by the patient undergoing surgical procedure [16]. Davis and Green (2012) also reported that economic burden associated with type of anesthesia and surgical procedure can be devastating to patient, families and this may result in delay of appropriate surgical intervention, bring dissatisfaction to patient about the procedure. According to the study conducted on patient with carotid endarterectomy using both local and general anesthesia, overall patient satisfaction with the procedure performed under general anesthesia and local anesthesia was high, however, in the general anesthesia group, patient satisfaction and future preference were significantly higher [17]. Also, [18] reported that patient satisfaction with anesthesia is associated with quality of patients' recovery, therefore, quality of patient recovery has a marginal additional effect on total patient satisfaction with anesthesia and surgery.

Inoue et al. [18] in their study done reported low dissatisfaction with anaesthesia among patients that underwent surgical procedures in Japan. This was higher in women than in men and in spinal anaesthesia than in general anesthesia, and was observed mostly in patients aged from 20 to 39 years [18]. However, patient satisfaction with continuity of personal care by the anesthetist was significantly increased by the introduction of a single post- operative visit by the anesthetist compared with no visit at all [19]. Furthermore, a study conducted in Taiwan showed a higher score of satisfaction with anesthesia inclusive of waiting time for surgery in the operating room, attitude towards anesthetist and during post operative visit in the management of complications of patients who were offered small video teaching in comparison to patients who had traditional preoperative visit [20]Therefore, upon this background, this study aims at identifying the determinants of level of patients' satisfaction with anesthesia among post- operative patient in UNIOSUN Teaching Hospital, Osogbo. This study was guided by the following research questions

i. What is the level of satisfaction with anesthesia among post - operative patient in UNIOSUN Teaching Hospital, Osun State?

ii. What is the extent to which knowledge about anesthesia administered is a determinant of patient satisfaction with anesthesia?

iii. What is the extent to which clinical variables are determinants of patients' satisfaction?

II. MATERIALS AND METHODS

Design: The study employed the descriptive survey research design where the variables were surveyed and described. The study population comprised patients that underwent major surgical operation and had anesthetic procedure at UNIOSUN Teaching Hospital, Osogbo. The sample consisted of 183post-operative patients using convenience sampling technique. The sample size was calculated using Taro Yamane formula ($n=N/1+N(d)^2$. n=sample size, N=285, d=0.05 which corresponds to 95% confidence level.

Settings: The study was conducted among post-operative patients in UNIOSUN Teaching Hospital Osogbo using convenience sampling technique.

Instrument: A self-developed structured questionnaire was used to elicit information from the participants. The data gathering tools were; socio-demographic variables consisting of 5 items such as age, gender, level of education, occupation and average monthly income; clinical variables such as ASA physical status, type of surgical procedure, types of anesthesia, duration of anesthesia effect consisting of 5 items; knowledge of patients on anesthesia consisting of ten (10) concepts The highest possible score was 10, the higher the score the greater the knowledge about anesthesia. Score between 1-3 was considered below average; score between 4-6 will be considered average knowledge; while the score between 7-10 was considered above average. Patients' satisfaction with anesthesia consists of 10 items with 'YES' or 'NO' answer. 'YES' signified satisfaction while 'NO' signifies not satisfied.

For the validity of the instrument, the psychometric properties of the questionnaire was checked by experts in the field and confirmed that the contents and the structure of the questionnaire were satisfactory. To reduce response error a pilot study was conducted among 18 post-operative patients in another setting with similar characteristics with the research setting.

Internal Reliability of the questionnaire was determined using Cronbach Alpha coefficient and value obtained was 0.79.

Statistical Analysis: Data obtained were coded and analysed using statistical package for social sciences (IBM SPSS) version 21.0; variables were analyzed using descriptive statistics of table and percentages while hypothesis were tested using chi-square and regression.

Ethical Consideration: Ethical approval for the study was collected from Babcock University Health Research Ethics Committee (BUHREC)with reference number 295/21. Also, the researcher had obligation to the subjects by getting their informed consent consistent with the principle of individual autonomy. Their voluntary participation, anonymity, privacy and confidentiality when collecting the data were also guaranteed. Their right to participate and not to participate was duly respected and any respondents that want to opt out during the study were allowed.

III. RESULTS

Table 1: Socio-demographic characteristics of respondents (n=183)

SN	Variable (N = 183)		Freq.	%
1	Gender	Female	84	45.9
		Male	99	54.1
2	Age	20-30 years	25	13.7
		31-40 years	79	43.2
		41-50 years	48	26.2
		51-60 years	31	16.9
3	Educational status	No formal education	-	-
		Primary education	33	18.0
		Secondary level	59	32.2
		Tertiary level	91	49.7
4	Occupation	Unemployed	29	15.8
		Trading	26	14.2
		Skilled artisan	29	15.8
		Civil servant	88	48.1
		Retirees	11	6.0
5	Income per months	Below ₦10,000	-	-
		₦11,000 – ₦30,000	17	9.3
		₦31,000 – ₦50,000	15	8.2
		₦51,000 – ₦70,000	26	14.2
		above ₦70,000	125	68.3

Fifty-four point one percent of the respondents were male, 43.2% were between ages 31-40 years, 49.7% had tertiary level of education, 48.1% were civil servants while 68.3% earned about 70,000 naira per month. Descriptive statistics of socio-demographic characteristics are presented in Table 1.

Table 2: Clinical variables of the respondents (n-183)

SN	Variable (N = 183)		Freq.	%
1	Types of surgery	Major	103	56.3
		Minor	80	43.7
2	Type of anesthesia	Regional	99	54.1
		General	84	45.9
3	ASA Status	I	39	21.3
		II	20	10.9
		III	78	42.6
		IV	46	25.1
4	Duration of surgery	1-2 hours	66	36.1
		3-4 hours	61	33.3
		5-6 hours	56	30.6
5	Duration of recovery from anesthesia	1-2 hours	31	16.9
		3-4 hours	101	55.2
		5-6 hours	51	27.9

Fifty-six point three percent of the respondents had major surgery, 54.1% had regional anesthesia with ASA III (42.6%), 36.1% had 1-2 hours duration of surgery and 55.2% had 3-4 hours recovery from anesthesia as presented in Table 2.

Table 3: Level of knowledge about anesthesia administered (n=183)

Levels of knowledge	Category of Scores	Frequency	Percentage	Mean ±SD
Above average	7-10	41	22.4	4.48(44.8%)±2.07
Average	4-6	94	51.4	
Below average	1-3	48	26.2	
Total		183	100.0	

Fifty-one point four percent of the respondents had average knowledge, 26.2% had below average knowledge level of anesthesia administered among the patients and 22.4% above average. The means score of the participants knowledge level of anesthesia administered among the patients was 4.48 (44.8%) ±2.07 as presented in Table 3. This implies that the knowledge level of anesthesia administered among the patients in this study is moderate .

Table 4: Level of patients' satisfaction with anesthesia (n=183)

S/N	Satisfaction (N = 183)	Yes		No	
		F	%	F	%
1	Were you satisfied with the information given to you about anesthesia pre-operatively?	79	43.2	104	56.8
2	Has your anesthetist visit you post operatively to give necessary anesthetic care?	96	52.5	87	47.5
3	Did you had enough sleep a night prior to day of surgery?	80	47.7	103	56.3
4	Were you anesthetized by Anesthesiologist?	111	60.7	72	39.3
5	Are you satisfied with your anesthetic care?	91	49.7	92	50.3
6	Were you satisfied with information and administration of post operative Anesthesia?	88	48.1	95	51.9
7	Did you have any discomfort or unpleasant feeling like thirst, hunger, pain, nausea after the surgery?	141	77.0	42	23.0
8	Were you satisfied with the response of anesthetist to your pain management intra and post-operatively?	100	54.6	83	45.4
9	Were you satisfied with the post-operative anesthetic care as regards your early ambulation?	84	45.9	99	54.1
10	Were you treated with dignity and respect, pre, intra and post operatively?	107	58.5	76	41.5
			53.8%		**46.2%**

Forty-three point two percent of the respondents were satisfied with the information given to them about anesthesia pre-operatively, 96 (52.5%) agreed that their anesthetist visit them post operatively to give necessary anesthetic care; 80 (47.7%) had enough sleep a night prior to day of surgery; 111 (60.7%) were anesthetized by Anesthesiologist. Also, 88 (48.1%) were satisfied with information and administration of post operative Anesthesia; and 141 (77%) had any discomfort or unpleasant feeling like thirst, hunger, pain, nausea after the surgery. Also, 100 (54.6%) claimed they were satisfied with the response of anesthetist to your pain management intra and post-operatively, 84 (45.9%) were satisfied with the post-operative anesthetic care as regards your early ambulation, and 107 (58.5%) were treated with dignity and respect, pre, intra and post

operatively. However, the weighted percentage level of satisfaction with anesthesia among patient undergoing surgery was 53.8%, this shows a moderate level of satisfaction as presented in Table 4.

Table 5: Relationship between patients' socio-demographic variables and satisfaction with anesthesia

		Yes	No	X^2	P
Gender	Female	34	50	11.234	.000
	Male	45	54		
Age	20-30 years	9	16	39.654	.023
	31-40 years	40	39		
	41-50 years	26	22		
	51-60 years	11	20		
Educational status	No formal education	-	-	28.890	.000
	Primary education	10	23		
	Secondary level	29	30		
	Tertiary level	46	45		

Table 5shows that the chi-square value obtained for gender is (x^2 = 11.234, p = .000); age is (x^2 = 39.654, p = .023) and educational qualification (x^2 = 28.890, p = .000) at the significant levels of less than 0.05. Since these p-values were less than 0.05 values, it could be said that there is a relationship between patients' socio-demographic variables (such as age, sex, and level of education) and satisfaction with anesthesia.

Table 6: Relationship between selected clinical variables (type of surgery, type of anesthesia, ASA Status, Duration of surgery, Duration of recovery from anesthesia) on patients' satisfaction with anesthesia

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	43.001	7.261		8.013	.000
type of surgery	3.180	2.700	.388	3.406	.000
type of anesthesia	5.900	1.373	.257	3.066	.000
ASA Status	6.542	1.893	.200	2.432	.000
Duration of surgery	3.453	2.088	.299	3.181	.000
Duration of recovery from anesthesia	3.600	2.432	.203	2.939	.021
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	247.715	5	49.543	6.875	.000[b]
Residual	1275.462	177	7.206		
Total	1523.177	182			
R = .512; R^2 = .262; R^2Adjusted = .259, SE = 8.009					

a. Dependent Variable: patient satisfaction with anesthesia

b. Predictors: (Constant), type of surgery, type of anesthesia, ASA Status, Duration of surgery, Duration of recovery from anesthesia

As presented in Table 6, the strength of causation of the predictor variables (type of surgery, type of anesthesia, ASA Status, duration of surgery, duration of recovery from anesthesia) on the criterion variable (patient satisfaction with anesthesia). The most potent determinants of patient satisfaction with anesthesia among the predictor variables of the study is type of surgery (β = .388; t = 3.406; p = .000). Duration of surgery is the next potent factors are (β= .299; t = 3.181; p = .000), followed by types of anesthesia(β= .257; t = 3.066; p = .000), duration of recovery from anesthesia (β= .203; t = 2.939; p = .021) and ASA Status were found to be determinants of patient satisfaction with anesthesia. Furthermore, patients' satisfaction with anesthesiayielded a coefficient of multiple regression (R) of 0.512 and a multiple correlation square of 0.259. This shows that 25.9% of the total variance in the patients' satisfaction with anesthesia is accounted for by clinical variables (c type of surgery, type of anesthesia, ASA Status, Duration of surgery, Duration of recovery from anesthesia). The Table also indicates that the analysis of variance of the multiple regression data produced an F-ratio value significant at 0.00 level ($F_{(5,177)}$ = 6.875; P = .000).Since the p-values are less than 0.05 values, it could be said that there is a significant relationship between the selected variables (type of surgery, type of anesthesia, ASA status, duration of surgery, duration of recovery from anesthesia) and patients' satisfaction with anesthesia.

Table 7: Extent to which knowledge about anesthesia administered determine patients' satisfaction with anesthesia

Summary of Analysis of variance on the extent to which knowledge about anesthesia administered determine patient satisfaction with anesthesia

Model	Unstandardized Coefficients		Standardized Coefficients	T	p-value
	B	Std. Error	Beta		
(Constant)	7.156	.290		90.802	.000
Knowledge	.055	.036	.122	3.831	.000

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	18.444	1	18.444	3.997	.000
Residual	835.134	181	4.614		
Total	853.578	182			

R = 0.487; Multiple R (Adjusted) = 0.237 Multiple R^2 (Adjusted) = 0.217; Stand error estimate = 5.132

a. Dependent Variable: patient satisfaction with anesthesia

b. Predictors: (Constant), knowledge about anesthesia administered

Knowledge about anesthesia administered has a beta value of .122 and t-value of 3.831 significant at .000 alpha level. The calculated value of f = 3.997 significant at 0.000 alpha level indicated that patients' satisfaction with anesthesia was significantly determined by the knowledge about anesthesia administered (t-value = 3.831, $f_{(1,182)}$ = 3.997, p = 0.000). Furthermore, knowledge about anesthesia administered yielded a coefficient of multiple regressions (R) of 0.487 and a multiple correlation square of 0.217. This shows that 21.7% of the total variance in the patients' satisfaction with anesthesia is accounted for by knowledge about anesthesia administered as presented in Table 7**.**

IV. DISCUSSION

The findings from the study showed moderate level of satisfaction with anesthesia among patient undergoing surgery. This study implies that measuring patient satisfaction has become parameter of the continuous quality assessment and improvement in anesthesia services. This is in line with the findings of [13] who reported moderate level of satisfaction among the patients in their study which was attributed to better staff-patient relationship and low fear and concern related to anesthesia and surgery. Moreso, the findings was also in tandem with the result of [13] who reported moderate level of patients' satisfaction with anesthesia. However, the result was lower than higher level of satisfaction reported in Netherland and England where 92.1% and 86.7% levels patients' satisfaction with anesthesia were recorded respectively. In addition, overall satisfaction of patient with anesthesia was low in the area of information dissemination, which was associated with the fact that information provided was not adequate during perioperative care period especially information related to anesthetic care [13]. The result from this study also corroborate the finding of [21] who also reported moderate overall level of satisfaction with anesthesia as nearly half of the patients dissatisfied with their anesthetic care due to different reasons.

Clinical variables (type of surgery, type of anesthesia, ASA Status, Duration of surgery, Duration of recovery from anesthesia) significantly influenced patients' satisfaction with anesthesia. The results revealed that type of surgery, type of anesthesia, ASA Status, duration of surgery, and duration of recovery from anesthesia significantly determined the patients' satisfaction with anesthesia. Type of surgery was found to be the most potent determinants of patient satisfaction with anesthesia among the predictor variables. This is followed by duration of surgery, types of anesthesia, duration of recovery from anesthesia and ASA status. The findings from the study partly corroborate the finding of [21] who stated that the types of anesthesia, information given to the patient and control of post- operative symptoms are the most significant predictors of patients; satisfaction with anesthesia which shows that good interpersonal relationship between patients and anesthetist and amount of information provided to patients have a significant role to play in patients' satisfaction with anesthesia.

The finding from the study revealed moderate level of patients' knowledge level of anesthesia. This result is slightly different from the report of [22] that revealed poor knowledge of patients regarding anesthesia as majority of patients were in favour of having general anesthesia rather than regional anesthesia. Also, [23] reported poor public knowledge regarding anesthesia in developed and developing countries and because of lack of public awareness about anesthesia a medical discipline, many patients do not recognise the role of anesthetist in preoperative, perioperative and postoperative period.The results from the study showed that knowledge about anesthesia administered significantly determined the patients' satisfaction with anesthesia. the result is in tandem with [2][3] that patients who had information about anesthesia were satisfied with anesthesia. The dimension of information provision involves specific question about the explanation and amount of information provided to patients regarding anesthesia which have significant influence on the level of satisfaction of patients with anesthesia [13].

The result from the study further shows that there is a relationship between patients' socio-demographic variables (age, sex, and level of education) and satisfaction with anesthesia. This is consistent with the study of [18] in their study done in Japan and reported low dissatisfaction with anesthesia among patients that underwent surgical procedures. This was higher in women than men and in spinal anesthesia than in general anesthesia, and was observed mostly in patients aged from 20 to 39 years [18] In support of the findings from the study, [13] stated that age of the patient is significantly associated with overall level of satisfaction with anesthesia. more so level of satisfaction was more among male than female However, patient satisfaction with continuity of personal care by the anesthetist was significantly increased by the introduction of a single post operative visit by the anesthetist compared with no visit at all [23]. More so, in corroboration with the findings from the study, [24][25] reported that among Brazilian population, education was statistically significant factors to define patients knowledge and satisfaction with medical education of anesthesia which was associated with higher intellectual capacity of the patients. In addition, a study conducted in Nigeria showed that patients with tertiary education have significantly higher level of knowledge and satisfaction with anesthesia than those with secondary or primary education [24].

V. CONCLUSION

Patient satisfaction explains the balance between expectations and perceptions of what was received. The overall proportion of patients that were satisfied with anesthesia was moderate. Knowledge of anesthesia, types of surgery, types of anesthesia. ASA statuses, duration of surgery, duration of recovery from anesthesia were determinants of patients' satisfaction with anesthesia. Therefore, there is need for anesthetist to establish a good rapport with their patients to know their concerns and address them appropriately.

Limitation of the study: The study focused on post-operative patients in the study area in tertiary health facility. The result cannot be generalized to patients that undergo surgery in secondary health facility and private hospitals.

Acknowledgement: Our heartfelt gratitude goes to the management of UNIOSUN Teaching Hospital, Osun State for permission to conduct the study among post operative patients. Also, we appreciate the effort of all the patients that participated in the study**.**

REFERENCES

[1]. Pozdnyakova, A., Tung, A., Dutton, R., Wazir, A., & Glick, D. B. (2019). Factors affecting patient satisfaction with their anesthesiologist: an analysis of 51,676 surveys from a large multihospital practice. *Anesthesia & Analgesia*, *129*(4), 951-959.

[2]. Gebremedhn, E. G., &Nagaratnam, V. (2014). Assessment of patient satisfaction with the preoperative anesthetic evaluation. *Patient related outcome measures*, *5*, 105.

[3]. Gebremedhn, E. G., Chekol, W. B., Amberbir, W. D., &Flatie, T. D. (2015). Patient satisfaction with anaesthesia services and associated factors at the University of Gondar Hospital, 2013: a cross-sectional study. *BMC research notes*, *8*(1), 1-9.

[4]. Avidan, A., Weissman, C., & Levin, P. D. (2015). Integration of QR codes into an anesthesia information management system for resident case log management. *International journal of medical informatics*, *84*(4), 271-276.

[5]. Carli, F. (2020).Prehabilitation for the Anesthesiologist. *Anesthesiology*, *133*(3), 645-652.

[6]. Card, E., Pandharipande, P., Tomes, C., Lee, C., Wood, J., Nelson, D., ...& Hughes, C. (2015). Emergence from general anaesthesia and evolution of delirium signs in the post-anaesthesia care unit. *British journal of anaesthesia*, *115*(3), 411-417.*medicine*, *19*(2), 211-221.

[7]. Carli, D. D., Meletti, J. F. A., Neto, N. E. U., Martinez, G., Kim, A. L. C., & de Camargo, R. P. S. (2020). General anesthesia technique and perception of quality of postoperative recovery in women undergoing cholecystectomy: A randomized, double-blinded clinical trial. *PloS one*, *15*(2), e0228805.

[8]. Schraag, S., Pradelli, L., Alsaleh, A. J. O., Bellone, M., Ghetti, G., Chung, T. L., ...&Rehberg, S. (2018). Propofol vs. inhalational agents to maintain general anaesthesia in ambulatory and in-patient surgery: a systematic review and meta-analysis. *BMC anesthesiology*, *18*(1), 1-9.

[9]. Moro, E. T., Leme, F. C. O., Noronha, B. R., Saraiva, G. F. P., de Matos Leite, N. V., & Navarro, L. H. C. (2016). Quality of recovery from anesthesia of patients undergoing balanced or total intravenous general anesthesia. Prospective randomized clinical trial. *Journal of clinical anesthesia*, *35*, 369-375

[10]. Nakahira, J., Sawai, T., Ishio, J., Nakano, S., & Minami, T. (2019). Factors associated with poor satisfaction with anesthesia in patients who had previous surgery: a retrospective study. *Anesthesiology and pain medicine*, *9*(5).

[11]. Crumley, S., &Schraag, S. (2018). The role of local anaesthetic techniques in ERAS protocols for thoracic surgery. *Journal of thoracic disease*, *10*(3), 1998.

[12]. Long, D. R., Doney, A., Bartels, D. L., Tan, C. E., Sayal, P. K., Anderson, T. A., &Agarwala, A. V. (2019). Anesthesia workspace cleanliness and safety: implementation of a novel syringe bracket using 3D printing techniques. *Anesthesiology research and practice*.

[13]. Andemeskel, Y. M., Elsholz, T., Gebreyohannes, G., &Tesfamariam, E. H. (2019). Patient satisfaction with peri-operative anesthesia care and associated factors at two National Referral Hospitals: a cross sectional study in Eritrea. *BMC health services research*, *19*(1), 1-8.

[14]. Moon, E. J., Go, Y. J., Chung, J. Y., & Yi, J. W. (2017). Non-intubated thoracoscopic surgery for decortication of empyema under thoracic epidural anesthesia: a case report. *Korean journal of anesthesiology*, *70*(3), 341.

[15]. Ironfield, C. M., Barrington, M. J., Kluger, R., & Sites, B. (2014). Are patients satisfied after peripheral nerve blockade? Results from an International Registry of Regional Anesthesia. *Regional Anesthesia & Pain Medicine*, *39*(1), 48-55.

[16]. Garaniya, R. R., Mehta, P., Shiyal, K., & Mehta, K (2019). patient satisfaction with anaesthesia services at the tertiary care hospital, a cross-sectional study Patient satisfaction and anesthesia services.

[17]. Mracek, J., Kletecka, J., Holeckova, I., Dostal, J., Mrackova, J., Mork, J., &Priban, V. (2019).Patient Satisfaction with General versus Local Anesthesia during Carotid Endarterectomy. *Journal of Neurological Surgery Part A: Central European Neurosurgery*, *80*(05), 341-344.
[18]. Inoue, S., Abe, R., Tanaka, Y., & Kawaguchi, M. (2017). Anesthesia management by residents does not alter the incidence of recall of tracheal extubation: a teaching hospital-based propensity score analysis. *Revistabrasileira de anestesiologia*, *67*(3), 251-257.
[19]. Ohtawa, Y., Yoshida, M., & Fukuda, K. (2019).Parental Satisfaction with Ambulatory Anesthesia during Dental Treatment for Disabled Individuals and Their Preference for Same in Future. *The Bulletin of Tokyo Dental College*, *60*(1), 53-60.
[20]. Zhang, X., Yu, P., Yan, J., & Spil, I. T. A. (2015). Using diffusion of innovation theory to understand the factors impacting patient acceptance and use of consumer e-health innovations: a case study in a primary care clinic. *BMC health services research*, *15*(1), 1-15.
[21]. Alsaif, A., Alqahtani, S., Alanazi, F., Alrashed, F., &Almutairi, A. (2018). Patient satisfaction and experience with anesthesia: A multicenter survey in Saudi population. *Saudi journal of anaesthesia*, *12*(2), 304.
[22]. Tilahun, R., & Drum, E. T. (2021). Factors affecting satisfaction with training programmes and.
[23]. Abolfotouh, M. A., Al-Assiri, M. H., Alshahrani, R. T., Almutairi, Z. M., Hijazi, R. A., &Alaskar, A. S. (2017). Predictors of patient satisfaction in an emergency care centre in central Saudi Arabia: a prospective study. *Emergency Medicine Journal*, *34*(1), 27-33.
[24]. Mooruth, V. (2015). *Knowledge and perceptions of patients regarding anaesthetists and anaesthesia* (Doctoral dissertation).
[25]. Acquah, R. C. (2019). *Patient Satisfaction with Anaesthesia Services during Elective Surgery at the Eastern Regional Hospital* (Doctoral dissertation, University of Ghana).
[26]. Asamrew, N., Endris, A. A., &Tadesse, M. (2020). Level of Patient Satisfaction with Inpatient Services and Its Determinants: A Study of a Specialized Hospital in Ethiopia. *Journal of Environmental and Public Health*, *2020*.