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Analysis of the Satisfaction of Women with the Quality of Maternal Health Services at the Federal Medical Centre, Makurdi, Benue State, Nigeria

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Abstract

The study examined satisfaction of women with maternal health services at the Federal Medical Centre, Makurdi, Benue State, Nigeria. This was a descriptive cross-sectional study with a sample size of 381 drawn from women attending ante-natal and postnatal clinic at the hospital using systematic sampling technique. Quantitative data was collected using a likert-type questionnaire and was analyzed using Statistical Package for Social Sciences (SPSS) version 21. Data was summarized using descriptive and statistical analysis; the chi-square test was used to test the association between independent and dependent variables. Level of statistical significance was set at $p< 0.05$ (5%). Findings of the study showed that most (82.9%) of the women were satisfied with the quality of maternal health services. The age and marital status did not influence the satisfaction of women with maternal health care services, education and income influenced the satisfaction of the women with maternal health services. Staff adequacy, staff attitude and competence influenced the satisfaction of women with maternal health services at the facility. Availability, modernity and functionality of medical products and technology influenced the satisfaction of women with maternal health services at the facility. The study revealed that communication by the facility staff on the medical procedures and medication, communication of bookings, and timeliness of communication on treatment follow-up influenced the satisfaction of women with maternal health services at the facility. The study recommends the need for health staff to improve the empathy dimension in their work, improvement on the medical products and technology, from the availability, functionality and modernity, and improvement in service delivery with specific attention to women with higher incomes who reported lower satisfaction ratios compared to those with lower incomes.

Keywords: *Maternal Health Services, Socio-Demographic Factors, Satisfaction, Health Workforce Factors, Medical Products and Technological Factors, Information and Communication.*

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1.1 Introduction

Patients' right to quality and access to healthcare is recognized globally. Its origin is traced to the United Nations Universal Declaration for Human Rights of 1948 that recognized the inherent dignity, equal and unalienable rights of all members of the human family. This has been emphasized in international agreements like the International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of Persons with Disabilities, Convention on the Rights of a Child (CRC), the Convention on the Elimination of All Forms of Discriminations Against Women (CEDAW), the Programme of Action of the International Conference on Population and Development (CRH, 2016).

Nigeria is a signatory to several global initiatives on health and development including the Sustainable Development Goals (SDGs) and the African Charter on Human and People's Rights (Banjul Declaration) Act, Cap A9 Laws of the Federation of Nigeria 2004. It guarantees an individual the right to enjoy the best attainable state of physical and mental health (CRH, 2016). Other platforms created in Nigeria that institutionalizes satisfaction and quality in healthcare services includes the National Health Insurance Scheme (NHIS) Decree 35 of 1999, Laws of the Federation, Section 5. They seek to ensure every Nigerian has access to good healthcare services (CRH, 2016), the 'SERVICOM', service compact, with all Nigerians established in 2014, as a policy intervention to instill trust and quality into the public sector (Ogunrin *et al.*, 2017). The National Health Act, 2014, established to create framework for regulation, development and management of the health systems to set standards for rendering healthcare services in the federation.

Maternal morbidity and mortality is associated with medical and underlying causes. The medical causes include obstetric complications such as obstetrics hemorrhage, abortion, and hypertension in pregnancy, obstructed labour and puerperal sepsis. Underlying causes are delay in accessing maternal care due to patient, community and facility factors. Patient related factors are transportation, unsafe, harmful and cultural practices, use of traditional medication, refusal of treatment, delay in decision making and poor health seeking behaviors (Alobo *et al.,* 2018). Community and traditional birth attendant factors include illiteracy, failure to recognize danger signs and failure to accept limitations. Facility factors include health systems failure at each point of service including intervention to patients, communication breakdown, incorrect diagnosis and mismanagement, unavailability of medical technology and supplies, intensive care unit, manpower, resuscitation facilities and lack of knowledge in obstetrics life-saving (Alobo *et al.*, 2018).

1.2 Statement of the Problem

Maternal morbidity and mortality remains a major challenge after the end of the Millennium Development Goals specifically in developing nations. In 2015, maternal mortality ratio was estimated at 216 per 100,000 live births globally. In Nigeria, maternal mortality was 817 per 100,000 live births as at 2015 (WHO, 2016) and 576 per 100,000 live births for Benue State, with 65.7 percent antenatal attendance and 70 percent skilled birth attendance (BSPC, 2016). In addition, WHO (2015) developed essential building blocks or pillars needed to improve health outcomes that is health workforce, medical products and technology, and information and

communication with an outcome of satisfaction. The World Health Organization (2015) advocated for patients' satisfaction assessment to promote quality and effectiveness of care. Patients' satisfaction is an essential tool for attracting and retaining patients, but is largely ignored and relegated at the hospital (WHO, 2015). In Nigeria, women report below average level of satisfactions on maternal healthcare and are likely not to visit a maternal healthcare center for a second delivery despite subsidized costs (BSPC, 2016).

Lack of adoption of these building blocks could delay the achievement of target 3.1 of the Sustainable Development Goals (SDGs) which proposed that countries with maternal mortality rate of 430 per 100,000 live births and above as at 2015 (Nigeria inclusive) are needed to reduce the maternal mortality rate to less than 140 per 100,000 live births by 2030 (WHO, 2016). It is on the basis of the above that the study sought to establish the satisfaction level of women with quality of maternal health services at the hospital, and invariably make recommendations appropriate for the improvement of maternal health services.

1.3 Objectives of the Study

i. To evaluate the socio-demographic factors influencing satisfaction of women with maternal health services at the Federal Medical Centre, Makurdi;
ii. To analyze the relationship between health workforce factors and satisfaction of women with maternal health services at the Federal Medical Centre, Makurdi
iii. To identify medical products and technological factors influencing satisfaction level of women with maternal health services at the Federal Medical Centre, Makurdi
iv. To determine the influence of information and communication on satisfaction of women with maternal health services at the Federal Medical Centre, Makurdi.

2.1 Literature Review

Concept of Quality Maternal Healthcare

The sub-heading looks at the general definition of quality in healthcare, quality in maternal and neonatal care. Avedis (1980) defined quality healthcare as the application of science and technology in a manner that maximizes its benefits to health without correspondingly increasing the risks. Goldman and Smith (2018) described quality health in four components: technical quality (assessed by the improvement in the health status of the patient); resource consumption (assessed by the cost of care); patient satisfaction (assessed by the perception of the patient with interpersonal aspect of care); and values (assessed by acceptability among the three previous outcomes) (Raven *et al.*, 2018).

Maxwell *et al.*, (2016) identified the following as characteristics of quality healthcare: Accessibility (geographical, financial, linguistic, physical and organizational); acceptability (respect for patients' values, beliefs and attitudes); relevance (must be provided in line with the health needs of the community); effectiveness (must be produced correctly so as to give the desired results); equity (no discrimination on whatever basis, it must be provided to those in need); efficiency(must be provided to achieve results within the available resources) (Raven *et al*., 2018).

However, defining quality maternal healthcare has been a challenge. Hulton *et al*., (2017) sees quality maternal healthcare as the degree to which maternal healthcare services for individuals and populations increase the likelihood of timely and appropriate treatment for the purpose of achieving desired outcomes that are consistent with current professional knowledge and uphold

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basic reproductive rights (Hulton *et al*, 2017; Raven *et al*, 2018). Palmer (2016) was of the view that quality is an intangible factor that can be quantified based on perception as Q=P/E, where P= Performance, E= Expectation. In order to determine P and E, healthcare organization determines P while customers determine E.

Factors Influencing Satisfaction of Women with Maternal Health Services

Most researches carried out on maternal healthcare in Nigeria focus on factors influencing and determining the utilization of maternal health care. Ononokpono *et al.*, (2015) identified community perception to quality of maternal healthcare. Nwaeze *et al.*, (2017) associated factors like attitudes of staff, cost of care, time spent at the hospital, doctors/ patient communication to influence patients' satisfaction. Babalola *et al.*, (2019) grouped the factors into individual, household, community and state levels. Woodside et al (2018) and Naidu (2019) identified the following as primary determinants to patient satisfaction: admissions, discharge, nursing care, food, housekeeping and technical services. According to Naidu (2019), patient satisfaction is predicted by factors relating to caring, empathy, reliability and responsiveness. Some dimensions affecting patient satisfaction evaluation includes; physician conduct, service availability, continuity, confidence, efficiency and outcomes. The study assessed the influence of socio-demographic, health workforce, medical products and technologies and information and communication on patients' satisfaction with maternal healthcare services.

3.1 Methodology

The study adopted a facility-based descriptive cross-sectional survey research design. This research design allowed the researcher collected information on the satisfaction levels of women with the quality of maternal services received from the medical center, and the factors that influence their satisfaction levels. The target population for the study was women attending the antenatal and postnatal clinic at the Federal Medical Centre, Makurdi. As reported by the facility, there are 10,557 women who attend antenatal and postnatal care at the facility (HRD, FMC MKD, 2017). The data was collected using interviewer administered questionnaire. The Fisher's *et al.*, (1998) sampling formula was used to determine the sample size.

The formula:- $n = \frac{Z^2 Pq}{d^2}$

Where:

n = desired sample size (for a population greater than 10,000)

Z= 1.96 for 95% confidence level

p= the proportion in the target population estimated to have a particular characteristic. Data from Benue State Development Plan indicated ANC attendance of 65.7%= 0.657 (BSPC, 2015)

q = 1-P=1-0.657 = 0.343

d= degree of accuracy at 0.05

Therefore, given the formula;

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$$n = \frac{1.96^2 \times 0.657 \times 0.343}{0.05^2} = 346.3$$

Ten percent was added to cater for non-response (35 + 346) giving a study sample size of 381.

The collected data was coded and entered into the Statistical Package for Social Sciences (SPSS) version 21. The data was then cleaned and analyzed. Descriptive data was summarized using frequencies and percentages. The chi-square test was used to test the relationship between the socio-demographic characteristics, health workforce factors, medical products and technology, and information and communication on the satisfaction of women with quality of maternal healthcare services. In cases where the cell counts were less than five (5) as is the rule of thumb with chi-square tests, a Fisher's Exact test was used. The level of statistical significance for the study was set at p=0.05 (5%).

4.1 Results and Findings

The findings of the women's satisfaction with the quality maternal healthcare services based on the five SERVQUAL dimensions were as shown in Table 1.

Table 1: Women Satisfaction with Maternal Health Services at the Federal Medical Centre, Makurdi, based on SERVQUAL Dimensions

Dimensions of Satisfaction	Satisfied	Not satisfied
Reliability	229 (72.5%)	87 (27.5%)
Responsiveness	247 (78.2%)	69 (21.8%)
Tangibility	253 (80.1%)	63 (19.9%)
Assurance	221 (69.9%)	95 (30.1%)
Empathy	11 (3.5%)	305 (96.5%)
Overall Satisfaction	**262 (82.9%)**	**54 (17.1%)**

Most of the respondents expressed satisfaction with maternal healthcare services in terms of the reliability (72.5%), responsiveness (78.2%), tangibility (80.1%), and assurance (69.9%). However, on the empathy dimension, most (96.5%) were not satisfied. Overall, the study revealed that most (82.9%) of the women were satisfied with the quality of maternal healthcare services delivered at the Federal Medical Centre, Makurdi; while the remaining 17.1 per cent reporting not being satisfied with the quality of maternal healthcare services offered at the facility.

4.2 Influence of Socio-demographic Factors on Satisfaction of Women with Maternal Health Services at the Federal Medical Centre, Makurdi

The socio-demographic factors examined were age, marital status, education level and income. To test the association between the different socio-demographic variables and the satisfaction with quality of maternal health services, the Fisher's exact test was used as there were certain categories which had counts less than five (5) and therefore not meeting the threshold for Chi-square tests.

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4.2.1 Age

Table 2 below presents the findings on the analysis of the influence of age of the women on their satisfaction level with quality of maternal health services. The ages were categorized into four age groups; 18-25 years, 26-35 years, 36-45 years, and 46-55 years.

Table 2: Age of Women and Satisfaction with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Age Category				
	18-25 years	26-35 years	36-45 years	46-55 years	Total
Satisfied	63 (85.1)	171 (83.0)	28 (80.0)	0 (0.0)	262 (82.9)
Not satisfied	11 (14.9)	35 (17.0)	7 (20.0)	1 (100.0)	54 (17.1)
Total	74 (100)	206 (100)	35 (100)	1 (100.0)	316 (100)

N = 316; Fisher's exact =0.260

As shown in Table 2 above, across the age categories of 18-25 years, 26-35 years and 36-45 years, majority (over 80%) of the women were satisfied with the quality of maternal health services, except for the respondent in age category 46-55 years who was not satisfied with the quality of maternal health services at the facility. With a Fisher's exact score of 0.260 which is more than the study p-value of 0.05, this shows that age is not significantly associated with satisfaction with quality of maternal health services. This therefore means that age does not influence the satisfaction level of women with the quality of maternal health services.

4.2.2 Marital Status

Table 3 below presents the findings on the analysis of the influence of marital status of the women on their satisfaction level with quality of maternal health services.

Table 3: Marital Status of Women and Satisfaction with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Marital Status		
	Single	Married	Total
Satisfied	10 (76.9%)	252 (83.2%)	262 (82.9%)
Not satisfied	3 (23.1%)	51 (16.8%)	54 (17.1%)
Total	13 (100%)	303 (100%)	316 (100%)

N = 316; Fisher's exact = 0.471

As shown in Table 3 above, most of the single (76.9%) were satisfied with quality of maternal health services while 23.1% were not. For the married women, most (83.2%) of them were satisfied with quality of maternal health services while 16.8% were not satisfied. With a Fisher's exact score of 0.471 which is more than the study p-value of 0.05, this shows that marital status is not significantly associated with satisfaction with quality of maternal health services. This therefore means that marital status does not influence the satisfaction level of women with the quality of maternal health services.

4.2.3 Education Level

Table 4 below presents the findings on the analysis of the influence of education level of the women on their satisfaction level with quality of maternal health services.

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Table 4: Education Level of Women and Satisfaction with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Education Level					
	FSLC	WASSCE	NCE, OND	HND, Degree	Postgraduate	Total
Satisfied	4(80.0)	91 (78.4)	75 (85.2)	19(70.4)	73 (91.2)	262(82.9)
Not satisfied	1 20.0)	25 (21.6)	13 (14.8)	8 (29.6)	7 (8.8)	54(17.1)
Total	5 (100)	116 (100)	88 (100)	27 (100)	80 (100)	316(100)

N = 316; Fisher's exact = 0.044

As shown in Table 4 above, of the respondents who had FSLC, 80.0% were satisfied with the quality of maternal health services while 20.0% were not satisfied. Of those with WASSCE, 78.4% were satisfied, while 21.6% were not satisfied. Of those with NCE/OND 85.2% were satisfied, while 14.8% were not satisfied. For those with HND/Degree, 70.4% were satisfied, while 29.6% were not satisfied. Of those with postgraduate education, 91.2% were satisfied, while 8.8% were not satisfied. The results of the analysis showed that education level of the women was significantly associated with their satisfaction with the quality of maternal health services; given a Fisher's exact score of 0.044, which is less than the p-value of 0.05. This therefore means that the education level of the women influenced their satisfaction level with the quality of maternal health services.

4.2.4 Income Levels

Table 5 below presents the findings on the analysis of the influence of income level of the women on their satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 5: Income Level of Women and Satisfaction with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Income				
	Below 50,000	50,000 - 250,000	250,00-400,000	400,000 and above	Total
Satisfied	46 (92.0)	103 (89.6)	70 (72.9)	12 (21.8)	262(82.9)
Not satisfied	4 (8.0)	12 (10.4)	26 (27.1)	43 (78.2)	54(7.1)
Total	50 (100)	115 (100)	96 (100)	55 (100)	316 (100)

N=316; Fisher's exact = 0.003

As shown in Table 5 above, for the women whose income was below 50,000 naira, 92% of them were satisfied with the quality of maternal health services, while 8% were not satisfied. For those whose income was 50,000-250,000 naira, 89.6% of them were satisfied while 10.4% were not satisfied. For those whose income level was 250,000-400,000 naira, 72.9% were satisfied while 27.1% were not satisfied. For those whose income was more than 400,000 naira, most (78.2%) were not satisfied, while only 21.8% were satisfied. Following the analysis, a Fisher's exact score of 0.003 was found. This is less than the study p-value of 0.05 indicating that income level of the women was significantly associated with their satisfaction with the quality of maternal health services. This therefore means that the income level of the women influenced their satisfaction level with the quality of maternal health services.

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4.2.5 Regression Analysis for Socio-demographic Factors on Satisfaction of Women with Maternal Health Services

Table 6 presents the findings on the regression analysis for socio-demographic factors on satisfaction of women with maternal health services.

Table 6: Regression Analysis for Socio-demographic Factors on Satisfaction

Satisfaction	B	Std. Error	df	Sig.	Odds Ratio
Age					
18-25	0.235	0.978	0	0.012	6.743
26-35	0.104	0.973	1	0.015	1.826
36-45	0.001	0.968	1	0.470	1.063
46-55	0b		0		
Marital Status					
Married	14.47	0.498	1	0.000	3.517
Widow	16.119	0.000	1	0.100	2.423
Single	0b		0		
Education Level					
Postgraduate	0.496	7281.956	1	0.001	5.245
HND, Degree	0.664	7281.956	1	0.044	4.386
NCE,OND Equivalent	1.597	7281.956	1	0.321	2.125
WASSCE	1.132	7281.956	1	0.312	1.145
FSLC	0b		0		
Income					
N400,000 above	1.796	0.381	0	0.004	5.267
N250,000- 400,000	1.019	0.576	1	0.017	3.279
N50,000- 250,000	0.242	0.771	1	0.754	1.281
Below N50,000	0b		0		

The results in Table 6 indicates that under age, the odds of 18-25 years woman seeking maternal healthcare being satisfied is 6.743 higher than those at the age of 46-55 years with a p-value of 0.012<0.05. Further, the odds of 26-35 years old woman seeking maternal healthcare being satisfied is 1.826 higher than those at the age of 46-55 years with a p-value of 0.015<0.05. Lastly, the odds of a 36-45 woman seeking maternal healthcare being satisfied is 1.063 higher than those at the age of 46-55 years with a p-value of 0.012>0.05.

Under marital status, the odds of a married woman seeking maternal healthcare being satisfied is 3.517 higher than the single women with a p-value of 0.000<0.05. In addition, the odds of a widowed woman seeking maternal healthcare being satisfied is 2.423 higher than the single women with a p-value of 0.100>0.05.

Under education, the odds of a postgraduate level woman seeking maternal healthcare being satisfied is 5.245 higher than the women with FSLC level with a p-value of 0.001<0.05. In addition, the odds of a HND, Degree level woman seeking maternal healthcare being satisfied is 4.386 higher than the women with FSLC level with a p-value of 0.044<0.05. Further, the odds of a NCE, OND Equivalent level woman seeking maternal healthcare being satisfied is 2.125 higher

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than the women with FSLC level with a p-value of 0.0321>0.05. Lastly, the odds of a WASSCE level woman seeking maternal healthcare being satisfied is 1.145 higher than the women with FSLC level with a p-value of 0.0312>0.05.

Under income, the odds a woman earning above N400000 seeking maternal healthcare being satisfied is 5.245 higher than the women earning below N50,000 with a p-value of 0.004<0.05. Further, the odds a woman earning between N250,000-400,000 seeking maternal healthcare being satisfied is 3.279 higher than the women earning below N50,000 with a p-value of 0.017<0.05. Lastly, the odds a woman earning between N50,000- 250,000 seeking maternal healthcare being satisfied is 1.281 higher than the women earning below N50,000 with a p-value of 0.0754<0.05.

4.3 Influence of Health Workforce Factors on Satisfaction Level of Women with Quality of Maternal Health Services at the Federal Medical Centre, Makurdi

The health workforce factors examined were staff adequacy, staff attitude, and staff competence.

4.3.1 Staff Adequacy

Staff adequacy assessed whether or not, as perceived by the respondents, the hospital has adequate staff to serve the antenatal and postnatal clinic. The findings on the analysis of the influence of staff adequacy on women satisfaction level with quality of maternal health services at FMC, Makurdi, are as presented in Table 7.

Table 7: Staff Adequacy and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Adequate Staff		
	Yes	No	Total
Satisfied	233 (87.3)	29 (59.2)	262 (82.9)
Not satisfied	34 (12.7)	20 (40.8)	54 (17.1)
Total	267 (100)	49 (100)	316 (100)

$\chi 2 = 23.0443$; N=316; df = 1; p=0.001<0.05

As shown in Table 7 above, 87.3% of the respondents who reported that there was adequate staffing at the Federal Medical Centre, Makurdi, were satisfied with the maternal health services at the facility, while only 12.7% were not satisfied. On the other hand, of those who reported there being inadequate staff at the facility, 59.2% reported being satisfied with the maternal health services, while 40.8% were not satisfied. A Chi-square test to establish the relationship between adequate staffing and the level of satisfaction of the women gave a $\chi 2$ value of 23.0443 and a p-value of less than 0.001 at one (1) degree of freedom. Since the p-value is less than 0.05, this shows that there is a significant association between staff adequacy and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.3.2 Staff Attitude

Staff attitude assessed whether or not as perceived by the respondents, the staff at the facility were easily approachable if one had a problem; if the staff cared for the needs of the patient; if they listened to the respondents; and if they were friendly while attending to them. The findings of the analysis of the influence of staff attitude on women satisfaction level with quality of maternal health services at FMC, Makurdi, are as presented in Table 8.

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Table 8: Staff Attitude and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Good Staff Attitude		
	Yes	No	Total
Satisfied	229 (89.5)	33 (55.0)	262 (82.9)
Not satisfied	27 (10.5)	27 (45.0)	54 (17.1)
Total	256 (100)	60 (100)	316 (100)

$\chi 2 = 40.7231$; N=316; df = 1; $p < 0.04 < 0.05$

As shown in Table 8 above, 89.5% of the respondents who reported that the staff at the Federal Medical Centre, Makurdi, had a good attitude were satisfied with the maternal health services at the facility, while only 10.5% were not satisfied. On the other hand, of those who reported that the staff at the facility did not have a good attitude, 55.0% reported being satisfied with the maternal health services, while 45.0% were not satisfied. A Chi-square test to establish the relationship between staff attitude and the level of satisfaction of the women gave a $\chi 2$ value of 40.7231 and a p-value of less than 0.004 at one (1) degree of freedom. Since the p-value is less than 0.05, this shows that there is a significant association between staff attitude and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.3.3 Staff Competence

Staff competence assessed the perception of the respondents as to whether the staff were knowledgeable of their work and whether or not they were satisfied with their professional competence. Table 9 below presents the findings on the analysis of the influence of staff competence on women satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 9: Staff Competence and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Competent Staff		
	Yes	No	Total
Satisfied	246 (88.2)	16 (43.2)	262 (82.9)
Not satisfied	33 (11.8)	21 (56.8)	54 (17.1)
Total	279 (100)	37 (100)	316 (100)

$\chi 2 = 46.5423$; N=316; df = 1; $p = 0.002 < 0.05$

As shown in Table 9 above, 88.2% of the respondents who reported that the staffs at the Federal Medical Centre, Makurdi, were competent were also satisfied with the maternal health services at the facility, while only 11.8% of them were not satisfied. On the other hand, of those who reported that the staffs at the facility were not competent, only 43.2% reported being satisfied with the maternal health services, while 56.8% were not satisfied. A Chi-square test to establish the relationship between staff competence and the level of satisfaction of the women gave a $\chi 2$ value of 46.5423 and a p-value of less than 0.002 at one (1) degree of freedom. Since the p-value is less than 0.05, this shows that there is a significant association between perception of staff competence and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

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4.3.4 Regression Analysis for Health Workforce Factors on Satisfaction Level of Women with Quality of Maternal Health Services

Table 10 presents the findings on the regression analysis for health workforce factors on satisfaction level of women with quality of maternal health services.

Table 10: Regression Analysis for Health Workforce Factors on Satisfaction

Satisfaction	B	Std. Error	df	Sig.	Odds Ratio
Attitude					
Positive	0.700	1.262	1	0.042	2.174
Negative	0b		0		
Adequacy					
Yes	0.188	1.609	1	0.907	2.287
No	0b		0		
Competence					
Yes	0.574	0.983	1	0.000	8.266
No	0b		0		

The results in Table 10 indicates that the odds of woman seeking maternal healthcare with a positive attitude being satisfied is 2.174 higher than those with a negative attitude with a p-value of 0.042<0.05. To the women who perceived the Federal Medical Centre to have adequacy, the odds of being satisfied were 2.287 higher than those the women who perceived the Federal medical center not to have adequacy with a p-value of 0.097>0.05. The women who perceived the Federal Medical Centre to have competence had 2.287 odds higher than those the women who perceived the Federal medical center not to have competence with a p-value of 0.000>0.05.

4.4 Influence of Medical Products and Technology Factors on Women Satisfaction with Quality of Maternal Health Services at the Federal Medical Centre, Makurdi

The medical products and technology factors examined were availability, functionality and modernity of medical product and technology.

4.4.1 Availability of Medical Products and Technology

Availability of medical products and technology assessed if the hospital has medical technology to provide complete antenatal and childbirth care including emergency obstetrics care, diagnosis and surgeries; it assessed whether or not prescribed pregnancy investigations like scanning, x-rays, and laboratory tests are always available at the hospital; and whether or not drugs and other medical supplies are always available in the hospital at the time of need. Table 11 presents the findings on the analysis of the influence of availability of medical products and technology on women satisfaction level with quality of maternal health services at FMC, Makurdi.

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Table 11: Availability of Medical Products and Technology and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Medical technology available		
	Yes	No	Total
Satisfied	144 (96.6)	118 (70.7)	262 (82.9)
Not satisfied	5 (3.4)	49 (29.3)	54 (17.1)
Total	149 (100)	167 (100)	316 (100)

$\chi 2 = 37.5285$; N=316; df = 1; p= 0.00<0.05

As shown in Table 11 above, 96.6% of the respondents who reported availability of medical products and technology at the Federal Medical Centre, Makurdi, were satisfied with the maternal health services at the facility, while only 3.4% were not satisfied. On the other hand, of those who reported that the facility did not have medical products and technology, 70.7% reported being satisfied with the maternal health services, while 29.3% were not satisfied. A Chi-square test to establish the relationship between availability of medical products and technology and the level of satisfaction of the women gave a $\chi 2$ value of 37.5285 and a p-value of less than 0.005 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between availability of medical products and technology and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.4.2 Functionality of Medical Products and Technology

Functionality of medical products and technology assessed whether or not the medical technology related to antenatal and childbirth care are always functional. Table 12 presents the findings on the analysis of the influence of functionality of medical products and technology on women satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 121: Functionality of Medical Products and Technology and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Functional medical products and technology		
	Yes	No	Total
Satisfied	199 (93.9)	63 (60.6)	262 (82.9)
Not satisfied	13 (6.1)	41 (39.4)	54 (17.1)
Total	212 (100)	104 (100)	316 (100)

$\chi 2 = 54.5777$; N=316; df = 1; p= 0.004<0.05

As shown in Table 12 above, 93.9% of the respondents who reported that medical products and technology at the Federal Medical Centre, Makurdi, were functional were satisfied with the maternal health services at the facility, while only 6.1% were not satisfied. On the other hand, of those who reported that the medical products and technology at the facility were not functional, 60.6% reported being satisfied with the maternal health services, while 39.4% were not satisfied. A Chi-square test to establish the relationship between functionality of medical products and technology and the level of satisfaction of the women gave a $\chi 2$ value of 54.5777 and a p-value of less than 0.004 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between functionality of medical products and

technology and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.4.3 Modernity of Medical Products and Technology

Modernity assessed if the medical products and technology for maternal care and childbirth care are up-to-date. Table 13 below presents the findings on the analysis of the influence of modernity of medical products and technology on women satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 132: Modernity of Medical Products and Technology and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Modern medical products and technology		
	Yes	No	Total
Satisfied	181 (93.3)	81 (66.4)	262 (82.9)
Not satisfied	13 (6.7)	41 (33.6)	54 (17.1)
Total	194 (100)	122 (100)	316 (100)

$\chi 2 = 38.2681$; N=316; df = 1; p =0.001<0.05

As shown in Table 13 above, 93.3% of the respondents who reported that the Federal Medical Centre, Makurdi, had modern medical products and technology were satisfied with the maternal health services at the facility, while only 6.7% were not satisfied. On the other hand, of those who reported that the facility did not have modern medical products and technology, 66.4% reported being satisfied with the maternal health services, while 33.6% were not satisfied. A Chi-square test to establish the relationship between modernity of medical products and technology and the level of satisfaction of the women gave a $\chi 2$ value of 38.2681 and a p-value of less than 0.005 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between modernity of medical products and technology and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.4.4 Regression Analysis for Medical Products and Technology Factors on Satisfaction Level of Women with Quality of Maternal Health Services

Table 14 presents the findings on the regression analysis for medical products and technology factors on satisfaction level of women with quality of maternal health services.

Table 14: Regression Analysis for Health Workforce Factors on Satisfaction

Satisfaction	B	Std. Error	df	Sig.	Odds Ratio
Modernity					
Yes	0.122	1.635	1	0.017	1.464
No	0b		0		
Availability of Quality Services					
Positive	0.700	0.983	1	0.021	1.643
Negative	0b		0		
Functionality					
Yes	0.574	0.612	1	0.000	1.281
No	0b		0		

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The results in Table 14 indicates that the women who perceived the Federal Medical Centre to have modernity had the odds of 1.464 higher being satisfied than those the women who perceived the Federal medical center not to have modernity with a p-value of 0.017>0.05. The women who perceived the Federal Medical Centre to have availability of quality services had 1.643 odds higher than those the women who perceived the Federal medical center not to have competence with a p-value of 0.021>0.05. The women who perceived the Federal Medical Centre to have proper functionality of had 1.281 odds higher than those the women who perceived the Federal medical center not to have proper functionality with a p-value of 0.000<0.05.

4.5 Influence of Information and Communication Factors on Satisfaction of Women with Quality of Maternal Health Services at the Federal Medical Centre, Makurdi

The information and communication factors examined were communication of bookings and appointments, communication (adequate and good communication) on medical procedures and medication, and timeliness of communication.

4.5.1 Communication of Bookings and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Communication of booking assessed whether or not the hospital communicated in a timely manner information on appointments and bookings with the respondents. Table 15 presents the findings on the analysis of the influence of communication of bookings on women satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 15: Communication of Bookings and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Communication Bookings		
	Yes	**No**	**Total**
Satisfied	244 (87.1)	18 (50.0)	262 (82.9)
Not satisfied	36 (12.9)	18 (50.0)	54 (17.1)
Total	280 (100)	36 (100)	316 (100)

$\chi 2 = 31.0601$; N=316; df = 1; p= 0.021<0.05

As shown in Table 15 above, 87.1% of the respondents who reported that the Federal Medical Centre, Makurdi, communicated information on the appointments and bookings in a timely manner were satisfied with the maternal health services at the facility, while 12.9% were not satisfied. On the other hand, there was a split between those who reported that the facility did not communicate information on appointments and bookings in a timely manner, with half (50%) reporting being satisfied with the maternal health services, while the other 50% reporting not being satisfied. A Chi-square test to establish the relationship between modernity of medical products and technology and the level of satisfaction of the women gave a $\chi 2$ value of 31.0601 and a p-value of less than 0.021 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between communication of bookings and appointments and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

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4.5.2 Communication on Medical Procedures and Medication and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Communication on medical procedures and medication assessed whether or not the hospital informed the women adequately and in a good way of the reasons for the various tests taken; explained the reasons for the antenatal and postnatal procedures; and explained the side effects of medications and drugs. Table 16 presents the findings on the analysis of the influence of communication on medical procedures and medication on women satisfaction level with quality of maternal health services at FMC, Makurdi.

Table 163: Communication on Medical Procedures and Medication and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Adequate and good communication		
	Yes	No	Total
Satisfied	219 (90.5)	43 (52.8)	262 (82.9)
Not satisfied	23 (9.5)	31 (47.2)	54 (17.1)
Total	242 (100)	74 (100)	316 (100)

$\chi 2 = 41.9567$; N=316; df = 1; p= 0.033<0.05

As shown in Table 16 above, 90.5% of the respondents who reported that the Federal Medical Centre, Makurdi, adequately and in a good way, provided them with information on the medical procedures and medication were satisfied with the maternal health services at the facility, while 9.5% were not satisfied. On the other hand, of those who reported that the facility did not provide them adequate (and in a good way) information on the medical procedures and medication, 52.8% reported being satisfied with the maternal health services, while 47.2% were not satisfied. A Chi-square test to establish the relationship between communication on medical procedures and medication and the level of satisfaction of the women gave a $\chi 2$ value of 41.9567 and a p-value of less than 0.033 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between communication on medical procedures and medication and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.5.3 Timeliness of Communication and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Timeliness of communication assessed whether or not the hospital gave the respondents prompt information on treatment follow-up and how this influenced the women satisfaction with maternal health services. Table 17 presents the findings on the analysis of the influence of timeliness of communication on women satisfaction level with quality of maternal health services at FMC, Makurdi.

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Table 17: Timeliness of Communication on Treatment Follow-Up and Influence on Women's Satisfaction Level with Quality of Maternal Health Services

Satisfaction with Quality of Maternal Services	Timely Communication on Treatment Follow-Up		
	Yes	No	Total
Satisfied	228 (89.1)	34 (56.7)	262 (82.9)
Not satisfied	28 (10.9)	26 (43.3)	54 (17.1)
Total	256 (100)	60 (100)	316 (100)

$\chi 2 = 36.0049$; N=316; df = 1; p=0.041<0.05

As shown in Table 17 above, 89.1% of the respondents who reported that the Federal Medical Centre, Makurdi, provided timely information on treatment follow-up were satisfied with the maternal health services at the facility, while 10.9% were not satisfied. On the other hand, of those who reported that the facility did not provide timely information on treatment follow-up, 56.7% reported being satisfied with the maternal health services, while 43.3% were not satisfied. A Chi-square test to establish the relationship between communication on medical procedures and medication and the level of satisfaction of the women gave a $\chi 2$ value of 36.0049 and a p-value of less than 0.041 at one (1) degree of freedom. Since the p-value is less than 0.05, the study established that there is a significant association between timely communication of information on treatment follow-up and level of satisfaction among women seeking maternal health services at the Federal Medical Centre, Makurdi.

4.5.4 Regression Analysis for Information and Communication Factors on Satisfaction Level of Women with Quality of Maternal Health Services

Table 18 presents the findings on the regression analysis for information and communication factors on satisfaction level of women with quality of maternal health services.

Table 18: Regression Analysis for Information and Communication Factors on Satisfaction

Satisfaction	B	Std. Error	df	Sig.	Odds Ratio
Bookings					
Yes	0.312	2.715	1	0.044	0.189
No	0b		0		
Timeliness					
Positive	0.811	0.223	1	0.021	1.024
Negative	0b		0		
Communication					
Yes	0.221	0.612	1	0.000	1.016
No	0b		0		

The results in Table 18 indicates that the women who perceived the Federal Medical Centre to have proper booking had the odds of 0.189 higher being satisfied than those the women who perceived the Federal medical center not to have proper bookings with a p-value of 0.044>0.05. The women who perceived the Federal Medical Centre to have timeliness had 1.024 odds higher than those the women who perceived the Federal medical center not to have timeliness with a p-value of 0.021>0.05. The women who perceived the Federal Medical Centre to have proper

communication of had 1.016 odds higher than those the women who perceived the Federal medical center not to have proper communication with a p-value of 0.000<0.05.

4.6 Discussions

The study established that there was no significant association between age and satisfaction level of women with the quality of maternal health services. This finding is contrary to the findings of a study by Emelumadu *et al.,* (2019) which reported that age is significantly associated with maternal healthcare services. With regard to the influence of marital status on women satisfaction, the study established that there was no significant association between marital status and satisfaction level of women with the quality of maternal health services. The result of the study is consistent with the finding of Oyugi, Kioko, Kaboro, Okumu, Ogola-Munene, Kalsi, & Ranji (2018) which revealed that marital status did not influence satisfaction with quality of maternal services. It however stands contrary to findings of a study by Emelumadu *et al.,* (2019) which reported that marital status is significantly associated with maternal healthcare services.On the education factor, the study established that there was a significant relationship between education and satisfaction level of women with the quality of maternal health services. This finding is consistent with the finding of studies by Emelumadu *et al.*, (2019) and Tocchioni, Seghieri, DeSantis & Nuti (2018) which pointed out that women's education influenced their satisfaction with maternal health services. On the income factor, the study established that there was a significant relationship between income and satisfaction level of women with the quality of maternal health services, with the study revealing that majority of the women with lower incomes were satisfied with the quality of maternal health services at the facility. This finding is consistent with the findings of a study by Tocchioni, *et al.,* (2018) which revealed that women with lower income were more satisfied with the quality of maternal care services.

The study established that there was a significant relationship between staff adequacy and satisfaction level of women with the quality of maternal health services. This finding is consistent with the findings of a study by Fawole, Okunlola, &Adekunle (2018) which established that availability and adequacy of staff to attend to women seeking maternal health care services influenced their satisfaction with the quality of maternal health care services. With regard to the attitude of the staff, the study established that there was a significant relationship between staff attitude and satisfaction level of women with the quality of maternal health services. This finding is consistent with findings of studies by Mannava *et al*., (2015) and Madeline (2018) which reported that the staff attitude and behaviour was a significant variable in influencing patients' satisfaction with maternal health care services. On the staff competence factor, the study established that there was a significant relationship between staff competence and satisfaction level of women with the quality of maternal health services. This finding is consistent with the findings of s study by Srivastava *et al.,* (2015) which reported that competence of staff influenced the satisfaction level of women with quality of maternal; health care services.

The study established that there was a significant relationship between availability of medical products and technology and satisfaction level of women with the quality of maternal health services. This finding is consistent with the findings of the study by Srivastava, *et al.*, (2015) which reported that availability of essential equipment, essential medical supplies, laboratory services, and emergency supplies like blood transfusion influenced the satisfaction of women with the quality of maternal health care services. On the functionality and modernity of the medical products and technology, the study established that there was a significant relationship between

functionality and modernity of medical products and technology and satisfaction level of women with the quality of maternal health services.

The study established that there was a significant relationship between communication on medical procedures and medication and satisfaction level of women with the quality of maternal health services. This finding is consistent with findings of studies by Friedman and Kelman (2016) and Akacho (2015) which reported that there was a relationship between communication between communication on medical procedures and treatment and satisfaction with healthcare services. On the factor on timeliness of communication of information on treatment follow-up, the study established that there was a significant relationship with women who reported receiving the communication promptly reporting to be satisfied with the quality of maternal health care services at the facility. The study, on the factor of communication of bookings, the study established that there was a significant relationship between the timely communication of appointments and bookings and the women satisfaction with maternal health care services at the facility.

5.1 Conclusions and Recommendations

The study revealed that most (82.9%) of the women were satisfied with the quality of maternal health services at Federal Medical Centre, Makurdi. Among the socio-demographic factors examined, age and marital status did not influence the satisfaction of women with the quality of maternal health care services offered at the Federal Medical Centre, Makurdi. On the other hand, education and income influenced the satisfaction of the women with the quality of maternal health care services.

With regard to the health workforce factors, the study established that staff adequacy, staff attitude and competence influenced the satisfaction of the women with the quality of maternal health services at the facility. On to the medical products and technology factors, the study found out that availability, modernity and functionality of medical products and technology influenced the satisfaction of women with the quality of maternal health services at the facility. As for the information and communication factors, the study established that communication by the facility staff on the medical procedures and medication, communication of bookings, and timeliness of communication on treatment follow-up influenced the satisfaction of women with the quality of maternal health care services at the facility.

Based on the findings of the study recommended that The Federal Medical Centre should improve on the medical products and technology, from the availability, functionality and modernity which scored lowest among all the other categories of influential factors. An improvement on the medical products and technology factor, more particularly with regard to the availability element would improve women satisfaction with maternal health care services at the facility. The study also recommended that The Federal Medical Centre should facilitate health staff improvements on the empathy dimension in their work. This dimension of satisfaction scored poorly in the perception of the women seeking health care services at the facility. Despite the relatively high scores, the facility should also improve on the reliability, responsiveness, tangibility, and assurance dimensions. Finally, the study recommended that The Federal Medical Centre management should prioritize to improve service delivery particularly for the women with higher incomes who reported lower satisfaction ratios compared to those with lower incomes.

REFERENCES

Adams, R. (2016) Medical Products Influence on Patient Satisfaction. *Modern Health Care*.http//:www.modernhealthcare.com

Alobo G, Ochejele S, Ngwan S.D (2018) A Review of Underlying Causes of Death in Benue State, North Central Nigeria. *Journal of Infertility and Reproductive Biology*, Vol.I, Issue 2.

Babalola Stella, Adesogun Fatusi (2019) *Biomed Central Journal of Pregnancy and Childbirth, Vol.9, 43*

Donabedian, A (2018). *The Definition of Quality and Approaches to its Assessment.AM Arbor*: Michigan Health Administration Press.

Emelumadu, O. F., Ukegbu, A. U., Ezeama, N. N., Kanu, O. O., Ifeadike, C. O., & Onyeonoro, U. U. (2019). Socio-demographic determinants of maternal health-care service utilization among rural women in Anambra state, South East Nigeria. *Annals of medical and health sciences research*, *4*(3), 374-382. https://doi.org/10.4103/2141-9248.133463

Fawole, A. O., Okunlola, M. A., & Adekunle, A. O. (2018).Clients' perceptions of the quality of antenatal care. Journal of the National Medical Association, 100(9), 1052-1058. https://doi.org/10.1016/S0027-9684(15)31443-7

Friedman, J.N & Kelman, J.J (2016) Public Sector Incentives an Inertial Effort, Harvard University, Cambridge, M.A- *Working Paper.*

Goldman, D., and J. P. Smith. (2018). The increasing value of education to health. *Social Science and Medicine* 72:1728–1737. https://doi.org/10.1016/j.socscimed.2011.02.047

Hulton, Louisa, A. Matthews, Zoe & Stones, R.W (2017) A Framework for Assessing Quality Maternal Health Services in Southampton U.K

Mannava P, Durrant K, Fisher J, Cherish M, Luchters S, (2015) Attitudes and Behaviours of Maternal Health Providers in Interaction with Clients: a Systematic view. *Global Health Journal*, volume II, Biomed Central

Memon M, Wagner, S. R, Pedersen, C. F, Beevi, F. H. A, & Hansen F. O. (2015). Ambient assisted living healthcare frameworks, platforms, standards, and quality attributes. *Sensors*, *14*(3), 4312-4341. https://doi.org/10.1186/s12992-015-0117-9

Mitchell, M., Hedt-Gauthier, B. L., Msellemu, D., Nkaka, M., &Lesh, N. (2017). Using electronic technology to improve clinical care–results from a before-after cluster trial to evaluate assessment and classification of sick children according to Integrated Management of Childhood Illness (IMCI) protocol in Tanzania. *BMC medical informatics and decision-making*, *13*(1), 95. https://doi.org/10.1186/1472-6947-13-95

Naidu, A.(2019) Factors Affecting Patient Satisfaction and Healthcare Quality. *International Journal of Health Care QualityAssurance.*Vol.22, NO 4,366-381. https://doi.org/10.1108/09526860910964834

Nwaeze, I.L, Enabor O.O, Oluwasola T.A.O, Amakhu C.O (2017) Perception and Satisfaction with Quality of Antenatal Care among Pregnant Women at the University College Hospital. *Annals of Ibadan Postgraduate Medicine*, vol. II, No I, Pages 22-28

Ononokpono, D. N, Clifford Obby Odimegwu (2015) Determinants of Maternal Healthcare Utilization in Nigeria: A Multi-level Approach. The Pan African Medical Journal, Vol.17, 2. https://doi.org/10.11604/pamj.supp.2014.17.1.3596

Oyugi, B., Kioko, U., Kaboro, S. M., Okumu, C., Ogola-Munene, S., Kalsi, S., ...& Ranji, M. (2018). A facility-based study of women' satisfaction and perceived quality of reproductive and maternal health services in the Kenya output-based approach voucher program. BMC pregnancy and childbirth, 18(1), 310. https://doi.org/10.1186/s12884-018-1940-9

Quan, S. D., Wu, R. C., Rossos, P. G., Arany, T., Groe, S., Morra, D.,& Lau, F. Y. (2017). It's not about pager replacement: An in-depth look at the interprofessional nature of communication in healthcare. *Journal of hospital medicine*, *8*(3), 137-143. https://doi.org/10.1002/jhm.2008

Raven J.H, Tolhurst R.J, Shenglan Tang, Nynke Van de Broek (2018) what is Quality in Maternal and ante natal healthcare? Midwifery Journal, 11th September.

Srivastava, A., Avan, B. I., Rajbangshi, P., & Bhattacharyya, S. (2015). Determinants of women's satisfaction with maternal health care: a review of literature from developing countries. BMC pregnancy and childbirth, 15(1), 97. https://doi.org/10.1186/s12884-015-0525-0

Tocchioni, V., Seghieri, C., De Santis, G., & Nuti, S. (2018). Socio-demographic determinants of women's satisfaction with prenatal and delivery care services in Italy. International Journal for Quality in Health Care, 30(8), 594-601. https://doi.org/10.1093/intqhc/mzy078

Willcox, M. L., Peersman, W., Daou, P., Diakité, C., Bajunirwe, F., Mubangizi, V & Khogali, M. (2015). Human resources for primary health care in sub-Saharan Africa: progress or stagnation? *Human resources for health*, *13*(1), 76. https://doi.org/10.1186/s12960-015-0073-8

World Health Organization (2015). Interagency list of Medical devices for essential interventions for Reproductive, Maternal, Newborn and Child Health. Geneva, Switzerland.