



## THE EFFECTS OF MARRIAGE, EDUCATION AND LOCATION ON THE USE OF MATERNAL HEALTHCARE SERVICES IN EDO STATE, NIGERIA.

BY

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### Abstract

**Objective:** This study investigated the determinants of maternal healthcare services utilization in selected communities.

**Methodology:** A descriptive cross-sectional survey design was adopted for the study using a questionnaire as a quantitative tool. The population of the study comprised women of reproductive age group (15-49) in Auchi, Aviele, New Benin, Uzebu, Ubiaju, Emu communities in Edo State. A multi-stage sampling technique was used to select 561 study participants from the target population. A total of 561 copies of the questionnaire were administered but 490 of them were retrieved and found to meet criteria for analysis. Data was analyzed using SPSS version 25 and computed for descriptive statistics – frequency with percentage counts, mean, and standard deviations. Additionally, inferential statistics chi-square and one-way ANOVA used to test the stated hypotheses.

**Results:** The finding show that the women's mean age of  $28 \pm 5.37$ . Residential location of the participants did not significantly influence their utilization of maternal healthcare services. Educational qualifications were found to influence the utilization of maternal healthcare services than those of lower educational levels ( $p-v < 0.05$ ). In addition, 364 (74.2%) respondents agree that free or low-cost of maternal health services would prompt and promote regular visits to clinic. **Conclusion:** It is recommended that the government should provide freer or low-cost maternal health care services for more participation from women.

**Keywords:** Maternal healthcare services, Pregnancy, Reproductive age, Utilization

### Introduction

Maternal health services refers to the promotive, preventive, curative, and rehabilitative health care of mother and children. Maternal healthcare services are the totality of activities related to the care and treatment of women in childbirth,

during pregnancy, and the period before and after delivery[1]. It encompasses the health care dimensions of family planning, preconception, prenatal, and postnatal care in order to ensure a positive and fulfilling experience for women of child bearing age.

Maternal health services render a plethora of services to women of reproductive age. These include but not limited to antenatal care, intrapartum care, emergency obstetrics and newborn care (EMONC), routine postnatal care, repositioning family planning/child spacing, newborn care, and micro-nutrients deficiency control for women of childbearing age[2].

Effective maternal healthcare services can save the lives of the estimated 280,000 women and 3 million newborns that die annually during pregnancy, childbirth, and the postpartum period and prevent millions of associated disabling conditions[3].

Components of maternal and child health services include; premarital /preconception or adolescent care, Antenatal care, Intrapartum care/delivery services, Postnatal care[4].

Antenatal care is the care provided by skilled healthcare professionals to pregnant women in order to ensure the best health condition for mother and baby during pregnancy, delivery, and post-partum period. The goal of antenatal care is to reduce maternal and perinatal mortality and morbidity through detection and treatment of pregnancy-related complication and identification and treatment of women at increased risk of developing pregnancy-related complications[5]. Antenatal care provides opportunities for preventive health care services such as immunization against neonatal tetanus, prophylactic treatment of malaria through the use of intermittent presumptive treatment approach, and HIV counselling and testing. Furthermore, antenatal care exposes pregnant women to counselling and education about their own health and the care of their children[6].

Intrapartum care provide adequate care during delivery by skilled attendants e.g. Doctors, Nurses, Midwives, and trained traditional birth attendants[7].

The availability of maternal healthcare services is considered to be an indicator of how well a health system is prepared to manage conditions leading to acute maternal morbidity and mortality.

Maternal healthcare services is now viewed as a human rights issue in health system preparedness, and a high-level priority in the maternal health community for the post-2015 global Sustainable Development Goals' (SDG) agenda, and the Low and Medium Income Countries (LMICs) remain the major focus area for actions against barriers that have been identified in literature[8], which must be overcome, in order to institute a successful EmOC program[9]. These barrier encompasses; inadequate skills needed to deliver high-quality maternal healthcare services, drug procurement challenges and logistical problems in health facilities, personnel shortages and lack of equipment, poor referral coordination from multiple sectors with competing interests, including health systems, infrastructure and public works, transportation, information and communication technologies; and, marginalized women's health and rights through restrictive policies[8]. To manage obstetric complications, it is recommended that facilities must have multiple skilled attendants covering 24 hours a day, seven days a week,

assisted by trained support staff[10]. In managing complications requiring surgery, it is recommended that facilities must have a functional operating theatre, more support staff, and must be able to administer safe blood transfusions and anaesthesia[11].

To ensure optimal pregnancy outcomes, all women and babies need access to appropriate maternal healthcare services in pregnancy, childbirth, and after delivery[12].

In Nigeria it has been reported that an estimated 2,300 children under the age of five and 145 women of childbearing age die every single day, making the country to account for the second-largest number of maternal and child deaths in the world[13].

Central Intelligent Agency (2016) equally reported that the maternal mortality rate resulting from obstetrics episodes in Nigeria is estimated to be 814 deaths/100,000 live births, which is about four times higher than the global average of 216 deaths per 100,000 live births[14]. Nigeria accounts for 2.4% of global population yet carry 14% of the global burden of maternal mortality[15]. Despite the frightening figures, the context and causes of maternal mortality and morbidity are known to be mostly from pregnancy-related complications, most of which are attributed to haemorrhage, puerperal sepsis, obstructed labour, hypertensive disorders, complications of abortion, uterine rupture and unsafe abortions[16].

Although maternal mortality was reported to have declined by 41% between 1990 and 2010[17]. Nigeria still ranks high in the list of countries with high maternal mortality rates. The high maternal mortality rate has been attributed to inadequate utilization of maternal health care services[18]. Deliveries in a health facility staffed with professional healthcare providers is associated with lower maternal and newborn mortality and morbidity rates compared with deliveries devoid of professional healthcare providers[19].

However, in Nigeria, the National Primary Health Care Development Agency (NPHCDA,2016) reported that 61% of pregnant women receiving care by a skilled provider in Nigeria, only 38% of births are attended to by professional birth attendants. Also, report from Nigeria Demographic and Health Survey (NDHS, 2018) stated that only 38% of Nigerian women delivered in a health facility with professional healthcare attendants which corroborated the NPHCDA of 2016.

From the foregoing, it is convenient to opine that Nigeria's high rate of maternal mortality is verily related to poor utilization of maternal healthcare services [19].

Studies have outlined several factors as influencing the utilization of maternal health services in developing countries including Nigeria. These factors range from availability, accessibility, and quality of services to the social characteristics of the users and their communities [18]. The present study therefore seeks to ascertain the determinants of maternal health care services utilization in Edo State, vis-à-vis, place of residence, education, cost, and women's autonomy.

Allowing these factors to continue to fuel poor utilization of maternal healthcare services which in turn contributes significantly to the high maternal mortality rate in Nigeria does not hold a good prospect for the struggle against maternal morbidity and mortality and therefore must be critically addressed[20].

Determinants of maternal healthcare service utilization in several geographical locations in Nigeria have been evaluated by several studies which showed that place of residence, education, cost of healthcare services, and women autonomy in respect to decision-making have significant influence on healthcare service utilization[21]. However, the specific situation as it relates to Edo State still manifests gross paucity of literature on the subject matter. As Edo State is not isolated from all the negative indices of maternal mortality and morbidity bedeviling Nigeria, it is proper to unravel the exact situation determinants that affect utilization of maternal healthcare services in the State. It is against this background that the current study was carried out to ascertain the determinants of maternal health care services utilization in Edo State.

The objective of this study was to investigate the determinants of maternal health care services utilization in selected communities in three senatorial districts of Edo State Nigeria.

### Health Believe Model

Health Believe Model seeks to describe people's health behaviour in two dependent aspect; the individual's perception on the threat of ill health, and the assessment of the required actions to control the threats. Individuals likely response to the recommended health actions depends on her evaluation of the available alternatives, the benefits and efficacy of the health behaviour and the related cost and abilities to perform the recommended health behaviour[22]

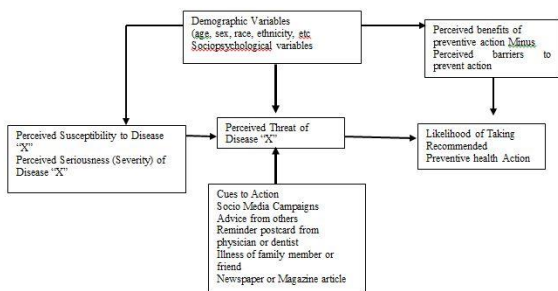


Figure 1: The Basic Elements of the Health Believe Model [23]

### Application of Health Believe Model on Maternal Health Care Services Utilization

The various factors influencing women Utilization of maternal health care services include residence, level of education of women as well as cost and women autonomy. These factors play a role in decision-making as regards Utilization of maternal health care services. The Health Believe Model is adopted as a conceptual framework to provide a sound and comprehensive theoretical basis for understanding the factors that influence women decisions on health service Utilization[24].

### Individual Perception Individual Modifying Factors Likelihood of Action

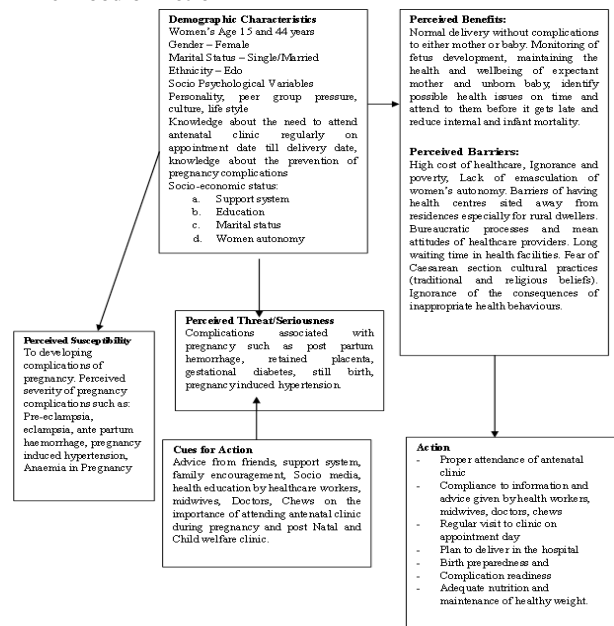


Figure 2: Adopted from Health Belief Model[25]

## Methods

### Research Design

The descriptive cross-sectional survey design was utilized for this study.

### Area of the Study

The study was conducted in Edo State. Six communities (one urban community and one rural community from each senatorial zone) across the three senatorial zone of Edo State were selected to reflect diversity of Edo people. Designation of community as urban was hinged on the community having at least 2,500 population or greater with at least a hospital of more than 50 beds handling chronic and long inpatient stay cases and located within or less than 25 kilometres from a city of 20,000 population or greater. Designation of a community as rural was based on the community having less than 2,500 population with no hospital or having a short-stay, acute care, inpatient health facility of fewer than 50 beds and located more than 25 kilometres from a city of 20,000 population or greater.

### Study population

Women in the reproductive age group (15-49 years) located in Auchi, Aviele, New Benin, Uzebu, Ubiaja, and Emu communities in Edo State, Nigeria.

### Sample Size Determination

A sample size of 500 women who had births in the year preceding the survey was determined statistically using Power Analysis formula for Sample Sizes for Two independent proportions,

$$n = \frac{2(Z_{\alpha} + Z_{\beta})^2 * P(1-P) * D}{d^2}$$

where

n<sub>i</sub>= minimum sample size for each group

$Z_{\alpha}$  = percentage point of standard normal deviate (2-sided) set at 95% confidence level = 1.96

$Z_{\beta}$  = power of the test set at 80% (20% beta error) = 0.84

P = rate of utilization of delivery services from a previous Nigerian study (Nnebue et al, 2014) = 57.1%

D = design effect = 1.5

$d^2$  = expected difference = 0.15

$$n = \frac{2(1.96 + 0.84)^2 * 0.57(1 - 0.57) * 1.5}{0.15^2}$$

n = 255

Therefore, from the above  $n_1$  (sample size drawn from urban area) and  $n_2$  (sample size drawn from rural area) are thus approximately 255 women of reproductive age group

From the calculation, sample size of  $n_1$  (urban) = 255 plus  $n_2$  (rural) = 255 [i.e  $N = n_1 + n_2 = 255 + 255 = 510$ ] would be the total sample size. Therefore, with anticipation of a 10% attrition rate,  $510 + 51 = 561$  was the final sample size.

### **Sampling Technique**

A multi-stage sampling technique was employed for this study as follows: Cluster sampling was used to categorize Edo State into three senatorial districts, namely: Edo South, Edo North, and Edo Central. In the second stage simple random sampling was used to select an LGA from each of the senatorial zone which were Etsako West for Edo North, Oredo for Edo South, and Esan South for Edo central. In the third stage, stratified sampling was used to select a community from the urban area of the LGA and also to select a community from the rural area of the LGA. Therefore, Auchi and Aviele were selected as urban and rural communities respectively in Etsako west, New Benin, and Uzebu as urban and rural communities respectively in Oredo, Ubiaja, and Emu as urban and rural communities respectively in Esan South LGA. In the fourth stage, a systematic sampling technique was also used in which the first household was selected from the community using simple random sampling, and subsequent household were selected after skipping two houses. In the final stage, from the households, one eligible participant was selected by simple random sampling using a table of random numbers.

### **Inclusion Criteria and Exclusion Criteria**

Women whose children were between the ages of 0-3 years and were receiving maternal health care services within urban or rural area were included while those whose children were above three years excluded. This was to limit recall bias as well as ensure that those who participated in the study recently had the need to use maternal health services.

### **Instrument for Data Collection**

Data collection was carried out by means of a researcher constructed questionnaire titled: Maternal Healthcare Service Utilization Questionnaire (MHSUQ). The questionnaire tool was designed by the researcher under the supervision of her supervisor. The items in the instrument were structured in line with the research questions and also based on the ideas and information obtained from the reviewed literatures.

The instrument consisted of twenty-three (23) items arranged in two sections, namely: A and B. Section A is based on

socio-economic and demographic variables and embodies three (3) items [with two (2) items relating to participants place of residence and one (1) item relating to educational attainment]. Section B, on the other hand, contains twenty (20) statement items on determinants of MHSU.

### **Validation of the Instrument**

The instrument for the study was subjected to face and content validation. It was submitted to experts in the field of Nursing Education, Measurement, and Evaluation as well as maternal and child health. These experts made corrections in the content and structure of the instrument and ensured that the language used is clear, simple, understandable, and unambiguous

### **Reliability of Instrument**

Twenty copies of the questionnaire were piloted in two selected places [one rural (Ukpogo) and one urban area (Ekpoma) both from Esan West L.G.A] with similar characteristics as the study area in Edo State. Cronbach's alpha was used to check for internal validity. A reliability coefficient (r) of 0.8 was obtained and the instrument was seen as reliable for the study.

### **Ethical Consideration**

Approval for the study was granted by the Head of Department of Nursing Science, Ebonyi State University, Abakaliki. Ethical clearance and approval was obtained from the Ministry of Health, Hospital Management Board, Benin City, Edo State.

Consent was obtained from respondents by attaching a written informed consent to the questionnaire. They were assured that participation was voluntary and their responses would be confidential and that they were free to withdraw at any time of the survey without prejudice.

### **Procedure for Data Collection**

To ensure that the participants responded willingly, a brief note of appeal for their acceptance and compliance accompanied the instrument. Data was collected with instrument during a person-to-person interaction between the researcher or research assistants and the women concerned in the selected areas. Respondents were sourced from places where there are high probabilities of finding the target population within communities such as hospitals, markets, churches, women community unions, etc. The fieldwork lasted for a period of 8 weeks with 2 to 3 days spent at each selected location per week.

### **Training of Research Assistants**

Six research assistants were trained and utilized for this study. Questions in the instrument were discussed one after the other and areas of ambiguity were clarified.

### **Data Analysis**

Copies of the MHSUQ were examined for completeness of copies. Data collected from the questionnaires were tallied and put into frequencies. Consequently, frequency counts and simple percentages were used in computing and describing the research questions. In describing research questions 7 to 26 which are concerned with determinants of MHSU, each



question was answered as True, false or I don't know. True was given a score of 1, while false and I don't know were scored zero. I don't know was also scored because the questions were structured in such a way that indifference was similar to being false. Each section was subsequently added up and those who score above 50% were categorized as being positive for the section in question. Test of association was conducted using Chi-square and Fishers Exact test.

## Results

**Table 1: Demographic Characteristics of Respondents (n = 490)**

Socio-demographic Characteristics	Frequency (n = 490)	Percent
Age Groups		
≤ 19 years	14	2.9
20 - 34 years	405	82.7
35 - 44 years	71	14.5
Marital Status		
Have no Partner	38	7.8
Have partner	452	92.2
Residential Area		
Edo North	140	28.6
Edo South	210	42.9
Esan Central	140	28.6
Location of Residence		
Urban	240	49
Rural	250	51
Educational Status		
Non-Formal Education	20	4.1
Primary Education	193	39.4
Secondary Education	220	44.9
Postsecondary Education	57	11.6

A total of 556 women were recruited for the study. However, 490 questionnaires were properly completed and considered valid for data analysis. Thus, the response rate was 88%. The women's ages were between 15 and 44 years; with the mean age of 28 ± 5.37 years. Four hundred and fifty-two (92.2%) had partners/spouses, while the remaining had no partners/spouses. Table 1 depicts that 210 (42.9%) of the respondents lived in Edo South senatorial District, while the Esan Central and Edo North Senatorial Districts share equal number of respondents of 140 (28.6%). Similarly, 240 (49.0%) of the women were urban-based, whereas 250 (51.0%) of them were based in rural locations. A total of 220 (44.9%) of the respondents were secondary school leavers,

while 193 (39.4%) of them were primary school certificate holders and 57 (11.6%) had post-secondary school education

**Table 2: Influence of Respondents' Place of Residence on Maternal Healthcare Service Utilization**

Residential Location	Maternal Healthcare Service Utilization		Chi Sq.	df	P
	Did not use frequently (n= 211)	Frequently Utilized (n=279)			
Urban	93 (44.1%)	147 (52.7%)	3.566	1	0.68
Rural	118 (55.9%)	132 (47.3%)			

Table 2 depicts the influence of respondent's place of residence on maternal health service utilization. One hundred and forty-seven (52.7%) of participants who live in urban area were frequently utilizing maternal healthcare services than those in rural area, 132 (47.3%). though, not There was no significant difference (P >0.05) in the level of utilization in both rural and urban settlements.

**Table 3: Respondents' Educational Attainment**

Education Level Attained	Utilization of Services		Chi-sq.	Df	P
	No (%) (n = 211)	Yes (%) (n = 279)			
Non-Formal Education	16(7.6%)	4(1.4%)	17.873	3	0.001
Primary Education	82(38.9%)	111(39.8%)			
Secondary Education	98(46.4%)	122(43.7%)			
Post-secondary Education	15(7.1%)	42(15.1%)			

The influence of the women's educational qualification on levels of maternal healthcare utilization is depicted in Table 3. The findings indicate that educational attainment of the women influenced the utilization of maternal health services. This was found to be statistically significant (P = 0.001). Thus, educational status influenced their utilization of maternal health services significantly.

**Table 4: Cost of Activities on likelihood of Utilization**

Category	Maternal	Chi-	df	P
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of Cost	Healthcare Service Utilization		Sq.	d	P
	Unlikely Utilizers (n= 211)	Likely Utilizers (n=279)			
Unable to afford cost	168 (79.6%)	109 (39.1%)	80.401	1	0.001
Able to afford cost	43 (20.4%)	170 (60.9%)			

Majority, 168 (79.6%) of the respondents that were unable to afford the cost were seen unlikely to utilize the maternal health service. While, majority, 170 (60.9%) of those who could afford the cost were likely to utilize the maternal health services. This association was statistically significant.

**Table 5: Chi-square analysis of the influence of Women’s Autonomy on Maternal Healthcare Service utilization**

Autonomy	Maternal Healthcare Service Utilization		Chi-Sq.	d	P
	Unlikely Utilizers (n= 211)	Likely Utilizers (n=279)			
Have Autonomy	120 (56.9%)	250 (89.6%)	69.61	1	0.001
Do not have Autonomy	91 (43.1%)	29 (10.4%)			

Majority, 250(89.6%) of the likely utilizers were women who had autonomy, while majority, 91(43.1%) of those who did not have autonomy were unlikely to use the service. This was found to be statistically significant. (Chi-square = 69.1, df = 1, P = 0.001). Thus, women’s autonomy influenced the utilizations of Maternal Health Service utilization

## Discussion

### Demographic Characteristics of respondents

The participants under study were women of childbearing age; their ages ranged from 15 - 49 years (mean age being 28 years). The teenage mothers, ages 15 – 19 years were fewer than 3 percent. This might not mean that incidence of teenage pregnancies is reducing in the society, but more likely to be due to the fact that teenage pregnancy is frowned at in most parts of Nigerian societies and they do not usually get

adequate social support to even book for antenatal and childbirth care in primary health facilities. In addition, over 90 percent of the women in this study were married and living with their respective spouses. This is not strange because it forms part of the norms of the setting where the study was conducted.

In addition, 193 (39.4%) of the total respondents have basic primary education, 220(44.9%) had secondary school education and 57 (11.6%) had postsecondary school education. However, only about 4% of the respondents had no formal education. This could be the reason why education was not found to affect visit to maternal health centres. The findings of this study agree with that of Caldwell (1979), who consistently reported that a higher level of formal education significantly increases utilization of maternal healthcare services, even after controlling for other socioeconomic determinants[26].

### Influence of Place of Residence on Maternal Healthcare Services Utilization in Edo State

The finding of this study showed that women in Edo State were not affected by distance in term of accessing maternal health care services. The reason may likely be that the health facilities were sited within the reach of the users they were meant to serve. The current study finding is contrary to the study by Prosser (2007), where place of residence was discovered to affect maternal healthcare service utilization in developed and developing countries[27]. Mattson (2010) asserts that distance is not significant in determining the number of chronic care and acute care visits, especially for emergency maternal healthcare services. The finding by Mattson (2010) and this present study show similarity in the result that place of residence did not affect maternal health service utilization by women in Edo State[28].

### Influence of Educational Attainment on Maternal Healthcare Services Utilization in Edo State

Findings from this study showed that the higher the educational attainment of the women the more they utilized the maternal health services in Edo state. In other words, educational level of the women significantly influenced their utilization of maternal health services.

Furthermore, the result of the socio-demography in this study shows, that most of the respondents were educated, this is quite encouraging. It is evident that advocacy for girl-child education is yielding expected outcome. However, women who had only basic primary education were 193 (39.4%) out of the total respondents. Therefore, the minimum level of education for a girl-child should be fixed at secondary school education. Previous studies on determinants of maternal healthcare service utilization (MHSU) frequently pointed out female education as an important factor for the improvement of MHSU in developing[29].

### Influence of Cost on Maternal Healthcare Services Utilization in Edo State

The finding on the influence of cost in accessing and utilizing maternal health services among women in Edo State was

found to be significant. In other words, women who had financial power and thus could afford the cost of services utilized the services more than those who could not afford the services. In this study, the utilization was quite encouraging probably because some maternal health services have either been subsidized or paid for by the government.

#### ***Influence of women's autonomy on the utilization of maternal health services***

This study revealed that the influence of women's autonomy on utilization of health services was statistically significant as those who had autonomy were more likely to utilize these services. A possible explanation for this could be the fact that close to half of the women in this study had at least secondary school education. This would enable them seek out information and comprehend health education messages better thus improving their autonomy.

#### **Conclusion**

The place of residence did not affect likelihood of utilization of maternal healthcare services utilization in Edo State as the findings among urban and rural residents were similar. Also, this study revealed that as educational attainment increased, there was an increase in maternal healthcare services utilization in Edo State among respondents. Also, affordable cost of services increased likelihood of maternal health care services utilization by the women in Edo State among the women. Finally, having autonomy also increased the likelihood of utilization of health services.

Based on the findings, summary, and conclusion of the study on determinants of maternal health care utilization services in Edo State, the following recommendations were made:

1. Girl-child education should be improved by scaling it from mere basic primary education to at least minimum of secondary school as this would help improve the utilization of the maternal health services.
2. Cost of maternal health services in facilities should be reduced to the barest affordable minimum to encourage especially in government-owned owned and improve utilization of these essential services under study. Likewise scaling up health insurance coverage would help to make healthcare services more affordable to the women and thus improve utilization of maternal health services.
3. Efforts should be channeled at activities such as employment for women, increased participation of women in politics, etc. that would help improve women's autonomy
4. Although, marriage did not in any way the utilization of the maternal health services enhancement of male involvement in maternity care of their spouses may likely be promising strategy for promotion of service utilization among women.

#### **Contribution to knowledge**

This study presents empirical evidences on the determinants of maternal health care service utilization in Edo State. This

serves as a basis for future researches in the field of reproductive health and quality of life

Stakeholders and ministries of health at both federal and state levels will be able to design useful and effective information protocols that will enable women in Edo State to seek and use information appropriately in regards to maternal health.

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