

Original Research Article

Pregnant women's self-referral and perspectives on the use of prenatal ultrasound in a low-resource setting

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ABSTRACT

Background: Obstetric ultrasound forms an essential part of antenatal care around the world. The ultrasound is now widely available and accessible in most government and private health facilities in developing countries. Aim of this study was to determine the reasons for pregnant women's self-referral and perspectives on the use of obstetric ultrasound.

Methods: This was a questionnaire-based cross-sectional study conducted among 198 consenting pregnant women attending prenatal care at Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria.

Results: Of 198 participants, 182 (91.9%) reported performing obstetric ultrasound examination without doctor's request. Determination of fetal viability (40.7%) was the commonest reason for self-referral to ultrasound examination. Other common reasons include vaginal bleeding (15.3%), estimation of gestational age (9.3%), fetal sex determination (7.7%) and estimation of date of delivery (7.6%). Over half (57.7%) of the participants reported that the prenatal ultrasonography was costly whereas 76.9% believed that ultrasound use was unsafe in pregnancy.

Conclusions: The study participants were highly aware of the import of ultrasonography in pregnancy confirmation, dating and fetal wellbeing. As a result, are always willing to carryout prenatal ultrasound even without doctors' request.

Keywords: Obstetric ultrasound, Perspectives, Pregnant mother's self-referral

INTRODUCTION

Obstetrics ultrasound is the use of medical ultrasonography in pregnancy, in which sound wave are used to create real-time visual images of the developing embryo or fetus in the uterus.¹ Routine prenatal ultrasound screening is an integral part of the follow-up of pregnancy in many countries.² However, views by authorities on its use remain controversial with the main aspects of contention being benefits, cost and ethical consideration.³ It is an accurate technique for determining gestational age, number of fetuses, fetal cardiac activity and placental location.⁴ Also many congenital structural

anomalies and significant abnormalities in fetal growth can be identified.⁴

The introduction of ultrasound in obstetrics by Prof. Donald in 1958 revolutionized the process of fetal monitoring and diagnosis in prenatal care.⁵ The international society of ultrasound in obstetrics and gynaecology (ISUOG) recommends that pregnant women have routine obstetrics ultrasounds between 18 weeks and 22 weeks gestational age in order to confirm pregnancy timing, to measure the fetus so that growth abnormalities can be recognized quickly, and to assess for congenital malformations and multiple gestation.⁶ Additionally,

ISUOG recommends that pregnant women have obstetrics ultrasounds between 11 weeks and 13 weeks and 6 days gestational age as this can accurately confirm the timing of the pregnancy and can also assess for multiple fetuses and major congenital abnormalities at an early stage.⁶

Apart from the many medical benefits of antenatal ultrasound, the procedure is also known to have certain psychological effects.⁷ Generally, most mothers are happier when they see their fetuses on the monitor of the ultrasound machine, an indication of the viability of the pregnancy.⁸ There is a belief that it initiates bonding.⁹ There is a fairly consistent reduction in levels of anxiety, depression, hostility and somatic symptoms after the ultrasound scan.¹⁰

Modern obstetrics medicine relies heavily on ultrasound to provide detailed images of the fetus and uterus.¹⁰ However, ultrasound is very operator dependent. When an experienced physician uses advanced ultrasound equipment, the examination can provide detailed information on the fetus.¹¹ However, in some cases, prenatal ultrasound can miss some fetal abnormalities. On average, one third to one half of fetal structural birth defect are not detected with ultrasound, less commonly, ultrasound can sometimes indicate a fetal abnormality when no abnormality is present causing stress and worry among the parents.⁹

Ultrasound images now forms an essential part of antenatal care around the world. The facility is now available in most government and private health facilities in developing countries.¹¹ Antenatal ultrasound is a safe technology that meets the World Health Organisation guidelines for the use of technology because it is scientifically sound, accessible, affordable and acceptable.¹¹

Prenatal ultrasonography has increasingly become popular over the years and has become widely accessible even in developing countries. Therefore, this study aimed to identify the reasons for self-referral to prenatal ultrasonography and its associated factors among prenatal mothers attending prenatal clinic in our facility.

METHODS

Study design, period and area this was a cross-sectional study conducted between June 1, 2018 and August 31, 2018 among pregnant women attending prenatal care at Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria. The hospital is a tertiary health facility located in Abakaliki, the state capital and receives referral from all parts of the state and neighbouring states of Enugu, Cross River, Abia and Benue States.

Study population all consenting eligible pregnant women who attended antenatal care during the study period.

Study criteria are all women who gave informed consent to participate in the study were included in the study. Participants who had a verbal communication problem and complete loss of hearing were excluded.

Sample size determination the sample size was calculated by taking the average of 450 pregnant women who attend antenatal clinic per month in the hospital as study population and 12% of prenatal women's self-referral to prenatal ultrasound examination.^{7,12}

Using Open Epi software package for the determination of sample size and design effect of 1.5 at error margin of 5%, the final minimum sample size was calculated as 180.¹³ After considering 10% non-response rate for any unpredictable events, the final required sample size was 198.

Sample technique the sample respondents were selected using a simple random sampling method and the first participant was selected by using lottery method.

Data collection tools and procedures

A self-administered questionnaire was used for data collection. The questionnaire was developed following review of literatures on the pregnant women's experiences and perception on the use prenatal ultrasonography.¹⁻⁴

The study questionnaire was divided into six areas: 1) sociodemographic and obstetric characteristics (ie, age, parity, marital status, ethnicity, gestational age, occupation, participant's level of education, husband's level of education and husband's occupational); 2) Whether she has done obstetric ultrasound examination without her doctor's referral; 3) Reasons for self-referral to prenatal ultrasound examination; 4) Perceived cost of prenatal ultrasound examination; 5) Media exposure to access information about prenatal ultrasonography; 6) Perceived safety of ultrasound examination during pregnancy.

The reliability of the questionnaire was checked by conducting a pretest among pregnant women in the antenatal clinic, by taking 5% of the sample size. From the pretest, understandability, clarity, and organization of the questionnaire were checked. From the reliability test of knowledge and practice questions, 0.876 Cronbach's alpha value was found.

The questionnaire was prepared in English language and then translated to Igbo (local language in Abakaliki) that was used for data collection and re-translated back to English to check its consistencies. The questionnaire was then refined accordingly for final use.

Two trained house officers participated in data collection. The data collector were trained for one day on the techniques of data collections. The training also included

the importance of disclosing the possible benefit and purpose of the study to the study participants before the start of data collection.

Data quality control and analysis

The principal researcher checked completeness and consistency of questionnaires filled by the data collectors to ensure the quality of data. The collected data were entered and analyzed using SPSS version 22 (IBM Corp. Amork, New York, U.S.A). Proportions, rates and summary statistics such as mean, the standard deviation were calculated for most variables. The level of significance was set at $p < 0.05$.

Ethical considerations

Informed consent was taken from the study participants after informing the study subjects on study objectives, expected outcomes, and benefits associated with it. Confidentiality of responses was maintained throughout the study.

RESULTS

A total of 198 pregnant women participated in the study and all the study participants (100%) completed the questionnaire.

The sociodemographic and obstetric characteristics of the participants are shown in Table 1. The mean age of the study cohorts was 30.2 ± 8.1 years, ranged from 18 to 43 years. Majority of the participants were Igbo (94.5%), secundigravidas (32.4%), professionals (26.9%) and had tertiary educational (68.1%). Majority of the participants' husbands had tertiary education (72%) and were mainly civil servants (63.2%).

Of 198 participants, 182 (91.9%) reported performing obstetric ultrasound examination without doctor's referral (Figure 1).

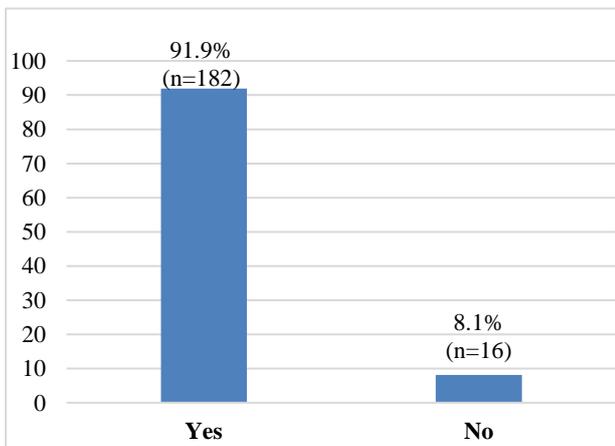


Figure 1: The participants reported self-referral to obstetric ultrasound examination.

Tables 1: Sociodemographic and obstetrics characteristics of the participants.

Variable	Frequency	Percentage (%)
Age (years)		
<20	4	2.2
20-24	20	11.0
25-29	52	28.6
30-34	46	25.3
35-39	52	28.6
≥40	8	4.4
Ethnicity		
Igbo	172	94.5
Yoruba	2	1.1
Hausa	3	1.7
Others	5	2.8
Educational level		
Primary	3	1.7
Secondary	55	30.2
Tertiary	124	68.1
Gestational age (weeks)		
0-13	38	20.9
14-28	102	56.0
29-40	42	23.1
Parity		
0	47	25.8
1	59	32.4
2-5	36	19.8
>5	40	22.0
Clients occupation		
Civil servant	36	19.8
Professional	49	26.9
Artisan	33	18.1
House wife	44	24.2
Others	20	11.0
Educational level of husband		
No formal education	0	0.0
Primary	5	2.8
Secondary	46	25.3
Tertiary	131	72.0
Occupation of the husband		
Civil servant	115	63.2
Trading	44	24.2
Farming	4	2.2

Determination of fetal viability (40.7%) was the commonest reason for self-referral to ultrasound examination by the participants. Other common reasons for self-referral to ultrasound examination include bleeding during pregnancy (15.3%), estimation of gestational age (9.3%), fetal sex determination (7.7%) and estimation of date of delivery (7.6%) (Table 2).

The participants perceived cost of obstetrics ultrasound examination is shown in Table 3. Over half (57.7%) of the participants reported that the prenatal ultrasonography was costly, whereas 29.7% said that it was cheap.

Table 2: Participants’ reasons for self-referral to prenatal ultrasound.

Variable	Frequency	Percentage (%)
Fetal wellbeing/viability	74	40.7
Sex determination	14	7.7
Fetal anomaly	12	6.6
Gestational age	17	9.3
Placenta localization	6	3.3
Confirmation of pregnancy	12	6.6
Number of fetuses	6	3.3
Date of delivery	13	7.6
Vaginal bleeding	26	15.3

Tables 3: Participants’ perceived cost of obstetric ultrasound.

Variable	Frequency	Percentage
Cheap	54	29.7
Costly	105	57.7
Very costly	23	12.6

Table 4: Sources of knowledge on ultrasound by the respondents.

Sources of knowledge	Frequency	Percentage
Friends	75	25.6
Television	20	6.8
Radio	16	5.5
News paper	17	5.8
Hospital	73	24.1
Doctors	92	31.4

Table 4 showed the sources of knowledge on ultrasound by the respondent. Majority (31.4%) got the knowledge from medical doctors, while 25.6%, got to know about it through friends. Those who got the knowledge from the hospitals were 24.9% and 6.8% heard it through watching the television. 5.8% said that they read it on newspapers while 5.5% heard about it over the radio.

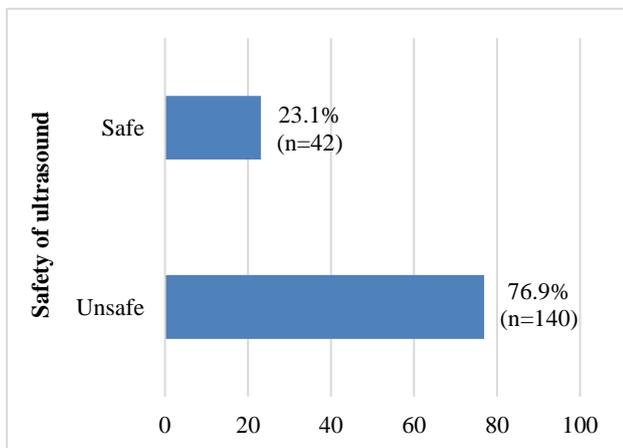


Figure 2: Perceived safety of ultrasound in pregnancy.

The participants perceived safety of ultrasound in pregnancy is reported in Figure 2. Of the participants, 76.9% believed that ultrasound use in pregnancy was not safe whereas 23.1% said that it was safe.

DISCUSSION

This study sets out to identify the reasons why pregnant mothers do ultrasonography without doctors’ request and their perspective on the use of prenatal ultrasound. Also, in this study, the mean age of the respondents was 30.3±8 years. This was similar to the mean age recorded in Ibadan and Sokoto.^{6,7} This study showed that most of the respondents were professionals and degree holders. This was similar to the findings by Ikeako et al and Oche et al.^{1,7}

Majority of the women of the respondents did ultrasound examination based on personal conviction. This may be due to the fact that majority of the respondents were educated and civil servants and could afford to do a prenatal ultrasound. Most of them also resided in the urban areas where facilities for ultrasound scan was readily available.

In this study, majority of the women who did prenatal ultrasonography said their reason was to determine the fetal viability/wellbeing and then followed by bleeding per vaginam in all trimesters of pregnancy. This may be due to the anxiety noticed in pregnant women irrespective of their parity, educational status or ethnicity. This is due to the fact that matrimonial success in this part of the world depends on conception and delivery of a live baby. This was similar to the finding by Ikeako¹ but differed from the findings of Mensah et al.¹⁰ Other reasons given by the respondents for prenatal ultrasound were confirmation of pregnancy fetal heart rate, estimation of gestational age, placenta localization, fetal anomalies, date of deliveries and number of fetuses. Their reasons were not explored further as the number of women who opined the above reasons were few in each subset.

The source of knowledge of ultrasonography in the respondent varied, however, the basic factors influencing knowledge were radio, television programs and newspapers in women with higher educational status while peer groups and periods influenced women with lower educational status. However, both groups still got pieces of information from their healthcare providers. This was similar to the findings in Tanzania and Uganda but different from the findings in Sokoto.^{6,7,11}

In this study, ultrasound scan was considered unsafe in 77.0% while 23.0% considered ultrasound safe in pregnancy. This may not be far from the fact that a good number of the respondent consider ultrasound an X-ray and so may be harmful in pregnancy. This is similar to the finding of Tambe in Central Africa which showed that the participants thought ultrasound might not be perfectly safe.⁴

CONCLUSION

In conclusion, ultrasound scan is an invaluable tool in modern obstetric practice. Clients need to be properly educated on what ultrasound scan is all about, its safety in pregnancy and the need to avail themselves for prenatal ultrasound scan for proper prenatal evaluation in the context of physician's request.

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Ethical approval: The study was approved by the Research and Ethical Committee of the Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria

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