



Utilization Of Sonography Among Pregnant Women In Rivers State

SAMUEL, Gentle Kitoye¹ & PEPPLA Queen Chinule²

**^{1,2}Department of Human Kinetics, Health and Safety Studies
Ignatius Ajuru university of Education Rumuolumeni Port Harcourt, Nigeria**

¹Phone: 08034837170/Email: Samuel.kitoye@iaue.edu.ng

²Phone: 07032118696

ABSTRACT

This study examined the utilization of sonography among pregnant women in Rivers State. The descriptive survey research design was adopted for the study with a population which consisted of 1,107,721 women between the ages of 20 – 49 years in Rivers State. A sample size of 770 was selected for the study using a multi-stage sampling procedure. A structured questionnaire with a reliability coefficient of 0.79 was used for data collection while data analysis was done with the aid of the statistical product for service solution version 23.0 using percentage, frequency and chi-square. The findings of the study showed that 693(98.3%) of the population had undergone sonography during pregnancy, 693(98.3%) of the respondents did it for medical reasons, 343(48.7%) of the respondents had undergone sonography thrice during pregnancy. About 702(99.6) of the respondents did it at the second stage of the pregnancy. 693(98.3%) of the respondents agreed that it was requested by the healthcare providers. The tested hypothesis showed that, there was no significant difference between age, parity, educational status, religion, gender preference and utilization of sonography among women in Rivers State. The study concluded that there was high use of sonography among women. Hence, recommended amongst others that maternal healthcare personnel should not relent in their efforts in keeping women of childbearing age abreast of current technological advancement in the care of women including sonography, during antenatal visit among others.

Keywords: Sonography, pregnant women, screening techniques

INTRODUCTION

In recent times, there has been an increased innovation in medical investigations and technological advancement for better delivery of healthcare including obstetrics of which sonography is one. Sonography is an important aspect of maternal and fetal health that enables pregnant women to view the images of their foetus directly which gives them reassurance about the health and sex of their foetus. According to Mubuuke et al. (2009), sonography is one of the range of screening techniques for pregnant women which has become a part of their routine care. It differs from most other screening techniques because it allows women to view their babies. The recent advances in methods of prenatal diagnosis, particularly sonography has resulted in a better understanding of certain congenital anomalies and consequently, the improvement in surgical and medical procedures to treat birth defects earlier with improved outcomes (Saadai et al., 2011). Similarly, Krishnamoorthy and Kasinathan (2016) stated that, sonography acts as a source of reassurance for the mother about the well-being of her baby and also a source of connecting with her baby in the antenatal period.

Utilization of sonography is now globally recognized as one of the ways through which maternal mortality can be reduced as it can be used to monitor the health of the fetus (Mubuuke et al., 2009) thus, enabling a prompt medical attention where situation demands. Statistics showed that, the mean number of sonogram examinations per day in the United States of America was 7.8 ± 6.0 (Sheiner et al., 2007). A report by Nelson, Fowlkes and Abramowicz (2008) showed that, approximately 250 million foetal sonogram examinations are performed per year in the United States of America. In Nigeria, Ikeako et al. (2014) reported that, 58% of women had sonography in their previous pregnancies. The previous ultrasound scans were mainly to determine the position of the baby. However, Gammeltoft and Guyen (2005) reported that innovative medical technologies like obstetric sonography have the potential to raise social, ethical and economic dilemmas for both health workers and the recipients of health services. Tautz et al. (2000) noted that, sometimes pregnant women's expectations were not met during scanning which creates a different feeling for them after the scan. To buttress this, if its utilization is not motivated by medical reasons such as knowing the health status and position of the baby which must be by the recommendation of the health care providers, such quandaries might be exacerbated. The American Institute of Ultrasound in Medicine (2013) noted that, this diagnostic procedure should be used prudently and should be performed only when there is a valid medical indication and that the lowest possible ultrasonic exposure setting should be used to obtain the necessary diagnostic information. Nelson et al. (2008) stated that, it should only be performed by trained, competent personnel. Thus, it is imperative that women have a clear knowledge about sonography to help them use it appropriately.

However, recent study by Agbata et al. (2018) showed that majority (88.8%) of the women had no fears about the sonography. Rather, visualisation of the foetus on ultrasound has been a source of pleasure, comfort and emotional reassurance for pregnant women and has been reported to enhance feelings of bonding between women and their foetuses (Firth et al., 2011). However, several reasons have been implicated for the use of sonography. Mabuuke et al. (2009) reported that, many women go for the scan just to know the sex of the foetus to aid buying of items early to match the sex of the child without spending a lot of money on unnecessarily items. However, many factors have been revealed to contribute to sonography among mothers including age, gender preference, educational level, religion etc (Bashoura et al., 2005; Ikeako et al., 2014; Arvan et al., 2019).

Utilization of sonography may sometimes yield unexpected findings which may have adverse effects on the mother and may provoke emotional crisis (Sommerseth & Sundby, 2010). Chigbu et al. (2008) noted that, women who received an incorrect determination of fetal sex by ultrasound experienced marital conflicts, domestic violence, negative perceptions of ultrasound, and difficulty with the upbringing of the newborn. The foregoing gives credence to the importance of pregnant women been knowledgeable about sonography so as to enable them makes informed decision about its utilization.

Sonography could have some damaging effects in human if done inappropriately. Poor knowledge of pregnant women about it can influence their decision to utilize it for non-medical reasons such as to have a picture of the fetus and to know the sex of the baby in which case, while sonography is used for confirmation of cyesis (pregnancy), monitor the wellbeing and growth of fetus inutero, to view the size, age, position and presentation of the fetus to rule out abnormalities in anticipation, that could lead to complications in pregnancy, labour and delivery export management thus, preventing maternal and infant morbidity /mortality, many women even resort to its utilization without a doctor's or health care giver's advice to do so. Also, personal observations by the researcher in health care facilities in Rivers State has shown that so many women express disappointment and negative attitude towards sonography particularly when the result did not match their desire or expectation as if the sonogram has the capacity to determine which sex of foetus they would have before presenting themselves for the examination. This is an anomaly which would have been abated if they really had knowledge and positive attitude towards it but, the reverse has always been the case even in situations where they report knowing why they want to use sonography.

Aim of the Study

The aim of this study was to determine the utilization of sonography among pregnant women in Rivers State.

METHODOLOGY

Study Area

The study was carried out in Rivers State

Research Design

The research design adopted for this study is a descriptive survey design.

Population of the Study

The study population comprised one million, one hundred and seven thousand, seven hundred and twenty-one (1,107,721) women between the ages of 20 – 49 years (National Population Commission, 2010).

Sample Size and Sampling Technique

The sample size of 770 was determined using the online sample size calculator with 5% margin of error, 95% confidence interval and population size as specified above (1,207,721).

Instrument for data collection

The instrument for data collection in this study was a semi-structured questionnaire titled, ‘questionnaire on the attitude and utilization of sonography’, which was adapted from Ikeako et al. (2014).

Validity of the Instrument

The validity of the instrument was established by three experts in the Department of Human Kinetics, Health and Safety Education, Ignatius Ajuru University of Education, Port Harcourt.

Reliability of the instrument

To ascertain the reliability of the instrument, twenty (20) copies of the validated instrument were pretested among women in Bayelsa State which is homogenous to the study area in order to ensure the internal consistency of the items in the questionnaire. Specifically, the reliability index found for attitude was 0.73 and practice was 0.83 which were tested with the Cronbach alpha statistics. Overall, a reliability coefficient of 0.79 was obtained for the whole instrument.

Methods of Data Collection

The researcher collected letter of introduction from the Head of the department for identification purpose. The researcher employed the help of three research assistants in the administration of the questionnaire to the respondents. Data was systematically collected in a manner that provides answers to the research questions in a logical and coherent way.

Method of Data Analyses

The data collected were analyzed using the statistical package for social sciences (SPSS) version 23.0 and data was presented using descriptive statistics to answer research questions and inferential statistics to test hypotheses at 0.05 alpha level.

RESULTS

Table 4.1: Level of Utilization of Sonography among pregnant women in Rivers State

Items	Frequency	Percentage
Ever undergone sonography during pregnancy		
Yes	693	98.3
No	12	1.7
Total	705	100
Done for medical reason		
Yes	693	98.3
No	12	1.7
Total	705	100
Requested by healthcare provider		
Yes	693	98.3
No	12	1.7
Total	705	100
Stage of pregnancy it was done		
First	3	0.4
Second	702	99.6
Total	705	100
Number of times sonography was undergone during pregnancy		
Six or more times	1	0.1
Five times	68	9.6
Four times	24	3.4
Thrice	343	48.7
Twice	257	36.5
Once	12	1.7
Total	705	100

Table 4.1 showed the level of utilization of sonography among pregnant women. The result showed that 693(98.3%) had undergone sonography during pregnancy, 693(98.3%) of the respondents did it for medical reasons, 343(48.7%) of the respondents undergone sonography thrice during pregnancy. 702(99.6) of the respondents did it at the second stage of the pregnancy. 693(98.3%) of the respondents agreed that it was requested by the healthcare providers.

Hypothesis 1: There is no significant relationship between educational status and the level of utilization of sonography among pregnant women in Rivers State.

Table 4.2: chi-square showing the relationship between educational status and the level of utilization of sonography among pregnant women

Education	Use of sonography		Total	df	X ² value	p-value	Decision
	Good F(%)	Poor F(%)					
None	11(100)	0(0.0)	11(100)	3	3.368	0.338	Accepted
Primary	46(95.8)	2(4.2)	48(100)				
Secondary	203(97.6)	5(2.4)	208(100)				
Tertiary	433(98.9)	5(1.1)	438(100)				
Total	693(98.3)	12(1.7)	705(100)				

Table 4.2 showed the relationship between educational status and the level of utilization of sonography among pregnant women in Rivers state. The result revealed that there was no significant relationship between educational status and the level of utilization of sonography among pregnant women in Rivers

state (X^2 value = 3.368, $df=3$, p -value= 0.338) hence, the null hypothesis which states that there is no significant relationship between educational status and the level of utilization of sonography among pregnant women in Rivers state was accepted.

Hypothesis 2: There is no significant relationship between parity and the level of utilization of sonography among pregnant women in Rivers State.

Table 4:3: chi-square table showing the relationship between parity and the level of utilization of sonography among pregnant women in Rivers State

Parity	Use of sonography		Total	Df	X ² -value	p-value	Decision
	Yes F(%)	No F(%)					
One	62(100)	0(0.0)	62(100)	2	1.203	0.548	Accepted
2-3	538(98.2)	10(1.8)	546(100)				
Above 3	95(97.9)	2(2.1)	97(100)				
Total	693(98.3)	12(1.7)	705(100)				

Table 4.3 showed the relationship between parity and the level of utilization of sonography among pregnant women in Rivers state. The result revealed that there was no significant relationship between parity and the level of utilization of sonography among pregnant women in Rivers state (X^2 value = 1.203, $df=2$, p -value= 0.548) hence, the null hypothesis which states that there is no significant relationship between parity and the level of utilization of sonography among pregnant women in Rivers state was accepted.

Hypothesis 3: There is no significant relationship between age and the level of utilization of sonography among pregnant women in Rivers State.

Table 4:4: chi-square table showing the relationship between age and the level of utilization of sonography among pregnant women in Rivers State.

Age	Use of sonography		Total	df	X ² value	p-value	Decision
	Yes F(%)	No F(%)					
<20 yrs	4(100)	0(0.0)	4(100)	3	1.782	0.619	Accepted
20-29 yrs	300(99.0)	3(1.0%)	303(100)				
30-39 yrs	247(97.6%)	6(2.4%)	253(100)				
>40 yrs	142(97.9%)	3(2.1%)	145(100)				
Total	693(98.3%)	12(1.7%)	705(100)				

Table 4.4 showed the relationship between age and the level of utilization of sonography among pregnant women in Rivers state. The result revealed that there was no significant relationship between age and the level of utilization of sonography among pregnant women in Rivers state (X^2 value = 1.782, $df=3$, p -value= 0.619) hence, the null hypothesis which states that there is no significant relationship between age and the level of utilization of sonography among pregnant women in Rivers state was accepted.

Hypothesis 4: There is no significant relationship between gender preference and the level of utilization of sonography among pregnant women in Rivers State.

Table 4:5: chi-square table showing the relationship between preference and the level of utilization of sonography among pregnant women in Rivers State.

Gender preference	Use of sonography		Total	df	X ² value	P-value	Decision
	Yes F (%)	No F(%)					
Male	487(99.8)	6(1.2)	493(100)	1	2.306	0.129	Accepted
Female	206(97.2)	6(2.8)	212(100)				
Total	693(98.3)	12(1.7)	705(100)				

Table 4.5 showed the relationship between gender preference and the level of utilization of sonography among pregnant women in Rivers state. The result revealed that there was no significant relationship between gender preference and the level of utilization of sonography among pregnant women in Rivers state (X^2 value = 2.306, $df=1$, p -value= 0.129) hence, the null hypothesis which states that there is no significant relationship between gender preference and the level of utilization of sonography among pregnant women in Rivers state was accepted.

DISCUSSION

The finding of this study showed that majority of the respondents (98.3%) had undergone sonography during pregnancy for medical reasons. The result is not surprising because sonography result is always demanded by the healthcare providers for further antenatal care of pregnant women in the various healthcare facilities. This result was similar to that of Ikeako et al., (2014) whose study on the attitude of expectant mothers on the use of ultrasound in pregnancy in a tertiary institution in south east of Nigeria showed that, majority of the respondents had ultrasonography in their previous pregnancies. Also, the finding of the study was in agreement to the findings of Elolamy et al., (2015) whose report showed that, majority of the study respondents had utilized sonography. This result also gives credence to the result of Mubuuke et al., (2009) which showed that, all reported accepting doing a scan as requested by the health workers. The result corresponds to that of Eniyandunni et al., (2010) whose report also showed that majority of the respondents had utilized sonography. This similarity found between the present study and the previous ones might be due to the homogeneity of the study respondents. Furthermore, the result was similar to the result of Ghavami et al., (2014) whose study in the North Western part of Iran showed that, majority of the women (93.8%) attended sonography. Also, this result was related to that of Singh et al., (2019) whose study in a tertiary care hospital in Bundelkhand region of UP that, more of the respondents had used ultrasonography. This finding is in line with the result of Akintomide and Obasi (2019) whose study among women in a South-southern State of Nigeria showed that, 98.5% accepted to undergo transvaginal sonography. The similarity between the result of both studies (present and previous) might be due to the uniformity of the study variables. However, the result was in variance to the result of Emma et al., (2011) whose study in Northern Tanzania showed that, majority of women had not previously had an obstetric ultrasound.

The result showed that, based on educational status, the level of utilization was seen most among pregnant mothers with no formal education and there was no significant relationship between educational status and the level of utilization of sonography among pregnant mothers in Rivers state (X^2 value = 3.368, $df=3$, p -value= 0.338). The result might be due to the fact that it is requested from the pregnant mothers by the antenatal healthcare providers irrespective of their educational status in the hospitals during some of the antenatal checkup. This result was similar to that of Singh et al. (2019) whose study among antenatal mothers attending tertiary care hospital in Bundelkhand region of UP the utilization of sonography among which more were illiterates. The similarities and differences between the result of the present study and the previous might be due to the homogeneity of the study variable and the difference in the instrument for data collection. This finding was not in consonance with that of Elolamy et al., (2015) whose report in a study in Saudi Arabia showed that, majority of the study respondents had utilized sonography among which majority had educational attainment beyond the secondary level. The findings of this study was also at variance with that of Okeji et al., (2017) whose study among Nigerian women showed that majority utilized sonography among which more had secondary and tertiary education. This variation might be due to the variation in the sample size and the sampling technique used in the different studies.

The result showed that sonography was utilized more among pregnant mothers with one child and that there was no significant relationship between parity and the level of utilization of sonography among pregnant mothers in Rivers state (X^2 value = 1.203, $df=2$, p -value= 0.548). The result of the study was in accordance to that of Eniyandunni et al., (2010) whose study on prenatal ultrasonography in Lagos University Teaching Hospital showed that majority of the respondents' utilized ultrasonography among

which more of the respondents had one child. This similarity found might be attributed to the homogeneity of the study respondents. On the other hand, the finding of this study is at variance with the report from several other studies. The finding of this study is at variance with that of Ikeako et al., (2014) whose study among expectant mothers in a tertiary institution in south east of Nigeria showed that majority who utilized ultrasonography were multiparous. Also, this finding was not in agreement to the findings of Mubuuke et al., (2009) whose study in Uganda showed that more of the respondents utilized sonography among which more were primigravida. The result was also in variance to that of Singh et al., (2019) who investigated the awareness of ultrasonography among antenatal mothers attending the tertiary care hospital in Bundelkhand region of UP and showed that, more than half were multigravida. The differences in these findings (present and previous studies) might be due to the difference in the study area or location.

CONCLUSION

Based on the findings of the study, it was concluded that pregnant mothers in Rivers State had high level of utilization of sonography. However, socio-demographic data such as age, education, parity, gender preference were not found to contribute to sonography among women.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. Maternal healthcare personnel should not relent in their effort to keep women of childbearing age abreast of current technological advancement in the care of women including sonography, during their antenatal visit.
2. The medical imaging technologists should uphold the positive attitude of women by taking time to explain the advantages and disadvantages of sonography to them whenever they are referred to undergo sonography.
3. The midwives and nurses in-charge of the care of pregnant women should refer women for sonography only for medical purpose knowing the disadvantage of excessive exposure to it.
4. Women of reproductive age should also not abuse the use of sonography by presenting themselves to undergo it without any medical reason.
5. Obstetricians and gynecologists should also play their role by telling the women what to expect when referred for sonography.
6. Obsolete ultrasonic and faulty machines should be avoided and the operators must be skilled personnels to avoid incorrect results which could lead to complication like depression, madness etc.
7. The state government should fund ultrasound examination for all pregnant women in Rivers State, thus helping the non-educated pregnant mothers in Rivers State to utilize this advanced technology since high level of utilization is among the mothers with high level education.

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