

Women's Attitude to Ultrasound Evaluation in Pregnancy in an African Setting

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ABSTRACT

Objective: This is a cross-sectional study to assess the knowledge, attitude and perception of pregnant women to the use of ultrasound in antenatal investigation in an African setting.

Centre: Department of Radiology, University of Benin Teaching Hospital Benin-City Nigeria

Methodology: A prospective study of all women referred for ultrasound scanning between 1st November 2006 and February 2007 for antenatal investigation, who consented to interview by self administered, pre-tested structured questionnaires. Two hundred and twenty questionnaires were analyzed. Analysis was done using SPSS version 13.0 and were tested with the Chi-square and fisher's exact test within a 95% confidence interval.

Results: Majority of the respondents were between the ages of 25 -29 years (40%). More than half of the respondents had educational level up to tertiary level (54.5%) and a large number of them were for routine investigation (78.2%). Majority of the respondents had uncritical view of ultrasound, and few who expressed some reservations, desired reduction in waiting time and cost of procedure.

Conclusion: This study concluded that high educational level of respondents, contributed to positive attitude and perception of this study group to antenatal ultrasound investigation.

Key Words: Attitude, Perception, pregnant, antenatal, ultrasound

INTRODUCTION

The value of ultrasound in evaluation of the foetus in pregnancy is considered in literature as an essential diagnostic instrumentation. ⁽¹⁻³⁾ It has been found fairly accurate in gestational assessment such as foetal age and as a means of exclusion or detection of foetal anomaly. The correlation of menstrual age

of pregnancy to ultrasound foetal age has been studied among Caucasians and Africans hitherto were fairly comparable. ⁽⁴⁻⁹⁾ Ultrasound has also been found useful in assessment of uterine wall, placental location and caliber, and uterine cervical caliber. ⁽¹⁰⁾

Since the early 1970s, ultrasound has been in use in Europe and USA, in antenatal assessment of pregnancy. In Nigeria, the use of ultrasound in antenatal assessment became common in the mid 1990s, but is still not widely available in all location of the country. The use is more in the southern cities of Nigeria. It could be considered to be mainly city practice.

The attitude of women toward ultrasound scanning during pregnancy and receipt of such information has been studied in Nottingham in UK. ⁽¹¹⁾ This showed positive finding, where great majority of the women were satisfied with their experiences of routine ultrasound scanning, accepting the procedure uncritically. The psychological impact of ultrasound scanning, in terms of satisfaction with the experience is largely dependent upon how the subjects perceive the procedure. Perception is a function of understanding and information received, and not necessarily being equivalent to that which the professionals believe they have imparted during the procedure. ⁽¹¹⁾ This was one of the reasons for our resolve to view our patients' perception of the ultrasound investigation and compare it with findings else where. Review of literature showed that subjects often display a misunderstanding of capability of ultrasound machine typically expecting more information than the technique is capable of delivering. ⁽¹²⁾

In addition evidence suggests that women's main interest in ultrasound in pregnancy is to determine foetal gender and those with the "wrong" gender according to prior aspirations are more depressed. ^(13,14)

The attitude of women to ultrasound

assessment in this our environment has not been ascertained. In this study we wish to assess the psychology of the women referred to our centre undertaking antenatal ultrasound assessment of their pregnancy, in terms of satisfaction, value, knowledge, experience, and result or report of findings.

METHODOLOGY

The study was carried out in the Department of Radiology, University of Benin Teaching Hospital Benin between 1st November 2006 and 28th February 2007. It was a prospective study aimed at assessing the attitude and perception of women to antenatal ultrasound investigation. University of Benin Teaching Hospital Benin-City Nigeria is a tertiary care hospital, with primary care facility, located within the university village and middle class surrounding communities. Hence the study limitation is absence of real rural African setting in the harvested respondents for the study.

All the respondents were referred for routine ultrasound for antenatal investigation. The candidates for the study were harvested from those who consented to be interviewed by self administered, pre-tested, structured questionnaires. Most of the interview was conducted by a University graduate paid interviewer, who had been instructed in all the questions in the questionnaire to avoid researcher bias. The interview was conducted in common language all respondents understood, in which Pidgin English was mixed with regular English. In all, 226 questionnaires were administered out of which 220 were correctly filled in line with statistical quantification.

Analysis was done using SPSS version 13.0 and hypothesis were tested with the Chi-square and fisher's exact test within a 95% confidence interval.

RESULTS

A total of 226 questionnaires were administered to pregnant women who presented for ultrasound scans at the Radiology Department. Two hundred and twenty were correctly filled and the data was analyzed with SPSS Version 13.0. Hypotheses were tested with the Chi-square and Fisher's exact test within a 95% confidence interval.

Most of the respondents were between the ages 25 - 29 years (40%) closely followed by the group 30 - 34 years of age (32.3%). The least

represented group was 15 - 19 years with 0.5% of respondents. (Fig 1) Over half of the respondents (54.5%) were at tertiary level of education and very few had never attended school (1.8%).

Those without previous delivery were mostly represented in the population (42.3%) and this percentage in the other groups declined progressively to a maximum parity of 8.

The nulliparous women were the largest group, with 42.3% followed by the multiparous (33.6%) and the primiparous (24.1%). Of the number that had, had previous birth experience, 152 women (69.1%) were having their first scan, while the remainder (30.9%) had obtained at least one scan in the present pregnancy.

A large number of the respondents had no complaints, consisting of 172 of them or 78.2%. Of the women that had complaints the most common of the complaints were pain (26 or 11.8%), bleeding 8 (3.6%), discomfort 3 (1.4%), weakness 3 (1.4%) and fever 3 (1.4%).

One hundred and fifty three (69.5%) felt that the (ultrasound scan) test was in determining the condition of the pregnancy. On the other hand 22 (10.0%) felt that it was not and 45 (20.5%) were undecided as to the accuracy of the test (Figure 1).

In trying to find out factors that affect their attitude towards USS, we found that the general feeling of the accuracy of the test was significantly related to the age of the respondents of which accuracy was in line with Fisher's exact test 7.475 P = 0.042. The respondents in the older age groups felt the test was accurate compared to the younger age groups (Figure 1). The feeling of accuracy did not relate significantly with educational status, parity, presence of complaints or number of scans in present pregnancy.

Many of the respondents (166 = 75.5%) did not wish for anything to be changed about how the test is conducted. 28 (12.7%) respondents answered 'yes' to desire for change but only 23 respondents (10.5%) specified what exactly they would like to be changed. (Fig 2) The reasons given varied from cost, by 13 respondents (5.9%), time taken for the test and 'allow to view scan' each by 3 respondents (1.3%), water intake by 2 respondents (0.91%), and 1 (0.45%) respondent each for waiting period and to be told sex of baby (fig 2). Specifically, the common concern was that the test was too expensive. At the time of this study an obstetric ultrasound scan cost about N1,000 (about \$8.0 (US dollars).

Educational status was found to influence their feeling of wanting to change something about

the way scanning was done, as more respondents with tertiary level of education were to a significant extent more interested in changing a part of the scanning process (Fisher's exact test = 9.308 P = 0.018).

Though most of the respondents feel that USS should be performed twice in pregnancy, the older age group appeared to have this feeling more than the younger age groups. (Fig 3) This was statistically significant (χ^2 = 37.842 P = 0.048). Educational status also show significant pattern as those with tertiary level of education feel USS should be done more than once in pregnancy unlike those of other levels of education (χ^2 = 42.315, P = < 0.0001).

There are two groups of respondents consisting of those who were undertaking their first scan (62.5%) and those who had done more than one scan (37.5%). In the first group of respondents, there was low number of respondents who considered that the test should be done when necessary or on doctor's recommendation unlike those who had previous experience of scan in second group. Fifteen (5.9%) felt that it should be performed only when necessary (Figure 3).

Parity did not significantly relate with number of scans they felt should be done, or did presence of complaints. Number of scans in the index pregnancy significantly related with number of times, they feel USS should be done. In effect those groups of respondents with first experience in scanning are more in taking decisions on number of times scan should be done (ranging from 1 to 3 times and don't know). A large majority considered scan as enough in pregnancy; however we noted lack of consistency in their response attributed to inexperience.

The majority of women felt that there was no harm to the baby whatsoever 159 (72.3%). A small number 6 (2.7%) felt that it may be harmful and 55 25% women did not know.

The number of scans in previous pregnancies had significant relationship with their consideration of accuracy of the test, number of times scans should be done and feeling of the scan being harmful to the baby. However the number of scans in previous pregnancy showed no significant relationship with consideration of the test being expensive or desire to change anything about the test.

On their feelings about how many times ultrasound should be performed in pregnancy, 74 respondents (33.6%) felt that it should be performed

2 or more times. Twenty six (11.8%) women felt it should be performed only once and a similar number felt it should be performed as much as 3 times (25 (11.4%).

DISCUSSION

Prenatal ultrasound procedure has become increasingly popular over the last two decades world wide and in this country over the last decade. Undoubtedly, it has become "fashionable" for women to receive at least one ultrasound scan in pregnancy. This trend has also indicated increased acceptance of the procedure as an important component of obstetric care.

Albeit the reasons advanced for an obstetric scan by the referring obstetrician, general practitioner or mid wife may in most cases be clearly stated, it is also evident that the reasons for such scans may be non medical. Amongst the non medical reasons for ultrasound scanning in pregnancy, the most prominent appears to be fetal sexing^(13, 14). This, in particular, was not the case in our study group, hence the paucity of its mention in our data. Thus we may attribute this to cultural prohibition or inhibition based on religious unacceptance of the practice.

The use of this procedure has unfortunately also lead to unrealistic expectations. It has been found that subjects misconstrue ultrasounds capability, typically expecting more information than the technique is capable of delivering⁽¹²⁾. Adverse effects of obstetric scanning are also documented and this varies from false negative scans, the unexpected finding of multiple gestations, to the presence of a foetus of the "wrong" sex⁽¹⁴⁾. These findings were not typified in our study; we considered that the educational level of respondents may have affected our data report. Most of the respondents were harvested from the community living within and around the university and 54.5% had tertiary level of education.

In addition, over and above its diagnostic capability, ultrasound scanning may have profound psychological effect on prospective parents, providing reassurance and enhancing bonding between couples and the fetus or fetuses^(15, 16). Large majority of our respondents supported the use of ultrasound at least twice in pregnancy and its desirability, which in our opinion confirms parental reassurance and bonding with their foetuses with use of ultrasound investigation in pregnancy. Most of quoted research has been done in developed

countries about women's perception of ultrasound scanning in pregnancy and on the other hand; there is paucity of literature on the subject out of developing countries.

This qualitative study explored women's views of Ultrasonography, in an African setting, their expectations of the procedure and certain aspects of the investigation that they would like to be altered. Various factors were considered to determine their choice, and the most prominent were the level of their education and the experience of the respondents. This supported the deduction that pregnant woman's views on the desirability of routine ultrasound are influenced by their perceptions of potential benefits and concern about possible adverse effects⁽¹⁷⁾.

Most of the respondents felt that the test was accurate. This general feeling of accuracy of the test was significantly related to the age of the women and number of children as these respondents felt that the test was accurate to a greater extent than those in younger age groups. This was explained by the fact that the older patients and those that had previous birth experience have had more contact with the procedure than the younger women.

The use of ultrasound at diagnostic frequency has not been proven to have any adverse effect on the foetus. This view was shared by the majority of the respondents. Social and educational level of respondents did not influence this perception neither did it influence those that felt it was harmful, however the experience of respondents influenced this deduction. Having said this, it is pertinent to note that there is need to continually educate patients about the safety of ultrasound at diagnostic levels. A similar study in Pakistan reported a much higher value of 97% as compared with the finding in this study (72.3%)⁽¹⁸⁾. Educating the patients will no doubt also enhance general positive feelings toward ultrasound scanning.

Many did not wish for anything to be changed about how the test was conducted, numbering 166 (75.5%) (Fig 3). This may imply a general feeling of satisfaction about how the test is currently conducted at the centre. Those who wanted change that answered in affirmation were 28 (12.7%) but only 23 (10.5%) specified what they would like to change. About 13 (5.9%) felt that the test was too expensive (fee of one thousand naira approximately eight US dollars). The average family earning of most of the respondents were roughly about, twenty-five thousand Naira.

Closely following this was the time taken to have the scan done which was desired by only 3 (1.3%) of those who wanted a change. The average waiting time for the investigation at the time of study was thirty minutes. The respondents that desired changes wanted reduction in following; price of scan, waiting time, water intake and duration of the procedure. The others desired to know the baby's gender and to be allowed to view the monitor.

Educational status was found to influence their feeling of wanting a change in the scanning process (more respondents with tertiary level of education were to a significant extent more interested in changing a part of the scanning procedure). This may be explained by the fact that with a higher level of education there is the ability and confidence to make informed choices and decisions.

Ultrasound scan use in pregnancy is on the increase globally. It has also been found that there is excessive use of the test in some countries, with some women who had normal pregnancies and only minor complaints having as many as 20 scans⁽¹⁹⁾. In this study the majority of respondents (74 (33.6%)) felt that it should be performed two or more times. Twenty six (11.8%) women felt it should be performed only once and a similar number felt it should be performed as much as 3 times (25 (11.4%)). This study has shown among our study group that there was no gross criticism of use of ultrasound as mode of investigation in pregnancy, even though most respondent recommended at least two time use in pregnancy. The disturbing finding was the low number of respondents who felt that physician's recommendation is important in the decision to perform the test. This brings us to the point of future problem of excessive use of this technology without recommendation by qualified personnel. We note in this study that majority of those being scanned for the first time were more in suggesting that physician recommendation is not important. This is to be discouraged as beyond a certain number of ultrasound scanning in pregnancy; it may not contribute additional useful information.

CONCLUSION

The respondents perception, attitude, and acceptance of the procedure, though influenced by the educational level, invariably was not the same as found in some other countries, because ultrasound scan is a developing medical technology in our

environment. However we note an emerging trend, toward disregard to physician recommendation before procedure. This may lead to future excessive use of ultrasonography. We recommend that national guidelines for obstetric scanning be developed with a view to providing more purposeful use of the technology.

Secondly, that the regulatory body is strengthened to guard against proliferation of ultrasound outfits manned by non professionals and that the use of ultrasound scanning solely for non medical reasons should be discouraged.

Figure 1-
Percentage distribution of respondents feeling of the accuracy of the test by age

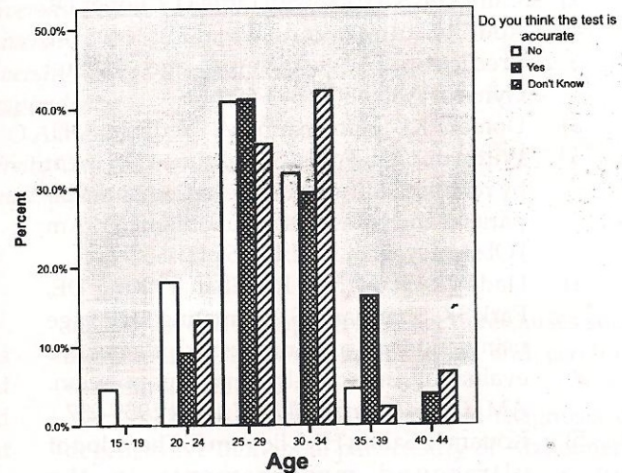


Figure 2 -
Percentage distribution of desired change

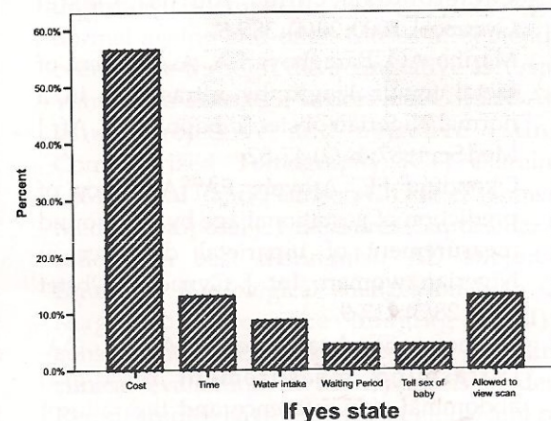
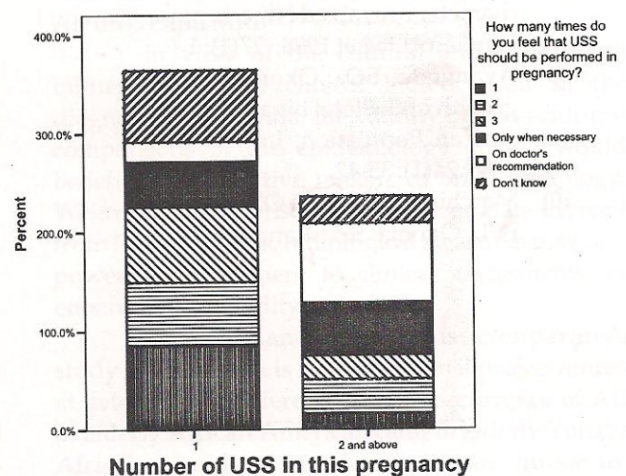


Figure 3-
Percentage distributions of respondents feeling of the number of times ultrasound should be performed in pregnancy versus number of scans received.



REFERENCES

- 1) Hadlock FP, Deter RL, Harrist RB, Park SK. Foetal bi-parietal diameter; critical evaluation of the relation to menstrual age by means of real-time USS. *Journal of ultrasound in medicine* 1982; vol 1(3): 97-10)
- 2) Campbell S, Warsol SL, Little D, Cooper DJ. Routine ultrasound screening for the prediction of gestational age. *Obstet Gynecol* 1985; 65(5): 613-620
- 3) Doman KJ, Hansmann M, Redford DH, Wittmann BK. Foetal weight measurement by real-time ultrasound measurement of bi-parietal and transverse trunk diameter. *Am J Obstet Gynecol* 1982; 142(6 pt1): 652-7.
- 4) Hadlock FP, Harrist RB, Shah Y, King DE, Park SK, Sharman RS. Estimating foetal age using multiple parameters: a prospective evaluation in a racially mixed population. *AM J Obstet Gynaecol* 1987; 156(4): 955-957.
- 5) Kouam L, Salihu HM, Boyom F. The value of ultrasound measurements in the Cameroonian child. *Journal Obstet Gynaecol* 2000; 20(4): 385-8.
- 6) Mariho AO, Bamgboye EA. Assessment of foetal femur length by ultrasound in a normal Nigerian obstetric population. *Afr J Med Sci* 1987; 16(2): 47-52
- 7) Okonofua FE, Atoyebi FA. Accuracy of prediction of gestational age by ultrasound measurement of biparietal diameter in Nigerian woman. *Int J Gynaecol Obstet* 1989; 28(3): 217-9.
- 8) Okonofua FE, Ayangade SO, Ajibulu OA. Ultrasound measurement of foetal abdominal circumference and the ratio of biparietal diameter to transverse abdominal diameter in a mixed Nigeria population *Int J Gynaecol Obstet* 1988; 27(1): 1-6
- 9) Ayangade SO, Okonofua FE. Normal growth of the fetal biparietal diameter in an African Population. *Int J Gynaecol Obstet* 1986; 24(1): 35-42.
- 10) Marchie TT, Otoibhi OE, Ogbeide E, Irabor PFI, Ogonja SZ. Random 2 dimensional ultrasonic evaluation of Uterine cervix in pregnancy. *Saudi Med Journal* 2006; 27(2): 269-271.
- 11) Whynes DK . Receipt of Information and women's attitude towards ultrasound scanning during pregnancy. *Ultrasound Obstet Gynaecol* 2002; 19: 7-12.
- 12) Eurenus K, Axelsson O, Gallstedt-Franssin I, Sjoden P. Perception of information, expectations, and experiences among women and their partners attending a second-trimester routine ultrasound scan. *Ultrasound Obstet Gynaecol* 1997; 9: 86-90.
- 13) Harrington K, Armstrong V, Freeman J, Aquilina J, Campbell S. Fetal sexing by ultrasound in the second trimester: maternal preference and professional ability. *Ultrasound Obstet Gynaecol* 1996; 8: 318-321.
- 14) Kamel HS, Ahmed HN, Eissa MA, Abol-Oyoun A-SM. Psychological and obstetrical responses of mothers following antennal foetal sex identification. *Journal Obstet Gynaecol Res* 1999; 25: 43-50.
- 15) Tsoi M, Hunter M. Ultrasound scanning in pregnancy: consumer reactions. *Journal Reprod Infant Psychol* 1997; 5: 43-48
- 16) Zlotogorski Z, Tadmor O, Rabinowitz R, Diamant Y. Parent attitude toward obstetric ultrasound examination. *Journal Obstet Gynaecol Res* 1997; 23: 25-17) Hyde B. An interview study of pregnant women's attitude to ultrasound scanning. *Social Science and Medicine* 1996; 22: 587-92.
- 18) Munim S, Khawaja NA, Qureshi R. Knowledge and awareness of pregnant women about ultrasound scanning and prenatal diagnosis. *J Pak Med Assoc* 2004; 54(11): 553-5.
- 19) Bashour H, Hafez R, Abdulsalam A. Syrian women's perception of ultrasound screening in pregnancy: implications for antenatal policy. *Reprod Health Matters* 2005; 13(25): 147-154.