

# REASONS FOR, AND TIMING OF ULTRASOUND REQUESTS IN PREGNANT WOMEN IN OWERRI SOUTH EASTERN NIGERIA

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## ABSTRACT

Although ultrasonography is an important investigation in obstetrics not much information is available about its use in developing countries. The study is across sectional questionnaire study of two hundred and fifty pregnant women who presented for ultrasound to the St Elizabeth hospital ultrasound centre between January 1<sup>st</sup> and June 30<sup>th</sup> 2010. Most of the patients were aged between 20-29(58%), married (93.2%), had 1-4 children (52.4%), and tertiary education (55.6%). The major indications were determination of fetal well being, dating and viability determination in that order. Most of the patients presented in the third trimester and only 66 (26.4%) presented on or before 22 weeks the ideal time for anomaly scan. It is concluded that physicians should be better educated so that they can refer patients earlier to benefit maximally from ultrasound scanning. There is also a need for more studies on ultrasound in developing countries.

**KEYWORDS:** Timing, reasons, ultrasound, Owerri, Nigeria.

## INTRODUCTION

Since the introduction of ultrasound into clinical medicine in the seventies it has grown to become the most widely used investigation in obstetrics. This is because it is safe, causes no damage to the mother or the fetus and can be repeated many times. It also offers the mother an opportunity to see the baby.

This is said to help in bonding (FLETCHER AND EVANS, 1983). It has been used in the first trimester for dating, establishing fetal number and ruling out congenital abnormalities (OTUBU, 2006). It has also been used in later pregnancy for determining position of the placenta and the presentation and position of the fetus. In the developed world, it is unusual now for a pregnant woman to go through pregnancy without one or more ultrasound scans. It is recommended that an early scan be done in the first trimester, a second scan, an anomaly scan at between 20- 22 weeks and a third scan late in the third trimester (KONGNYUY ET AL, 2007). This is not the case in many developing countries like ours for many reasons. Most deliveries still occur in the rural areas where they are supervised by

midwives and traditional birth attendants who may not even have heard of ultrasound. Even in the cities because of the relative cost of the machine and the cost of investigation a selective scanning policy is the rule as many are too poor to afford it. Despite its numerous advantages ultrasound has its drawbacks. These include prenatal gender determination and selective abortion of female fetuses (NZEH, 1996, THAME et al 2003), overestimation of its capabilities and the induction of less thorough history taking and physical examination.(TAUTZ ET AL, 2000). There is presently little information on the indications for, and timing of ultrasound scans in pregnancy in developing countries where this selective scanning is done. This is addressed in this paper.

## MATERIALS AND METHODS

This is a cross sectional study of two hundred and fifty pregnant women who presented for ultrasound scanning to the St. Elizabeth ultrasound centre, the oldest scanning centre in Owerri between the January 1<sup>st</sup> and June 30<sup>th</sup> 2010. Most of them were referred by doctors,

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midwives and other para medical practitioners but some came on their own. While the majority came from Owerri, others came from the surrounding sub urban and rural areas. On arrival at the centre willing participants were given a questionnaire to complete. The questionnaire was in English. Those who were literate completed them with little or no assistance while illiterates were aided by a nurse. The first section of the questionnaire sought information on socio demographic details of each patient while the other section explored the indication and timing of the first ultrasound scan in the ongoing pregnancy. Where these were not stated in the request form or where the patient came on her own, the information was obtained from the patient.

## RESULTS

Table 1 shows that most of the patients were in the age bracket 20 -29 .Their ages ranged between 15 and 41 years with a mean of  $28\pm 5$  years. Parity ranged between 0 and 8 and most of the patients 131(52%) were multigravidae while 103(41%) were primigravidae. Most 233(93%) of the patients were married with the rest being single. With regards to educational status 139(56%) had tertiary education while 98 (39%) had secondary education only. Doctors referred 175 (70%) of the patients, nurses 14(6%) while 61(24%) came on their own. The time of first ultrasound was  $23.08\pm 10$  weeks. The first trimester accounted for 54(22.8%), the second trimester for 76(32.3%) and the third trimester for 106(44.9%). Table 2 shows that students contributed the largest number of patients with 67(27%) while civil servants and housewives accounted for 35(14%) and 32(13%) of the patients respectively. Table 3 shows indications for the ultrasound examination. The most common reasons for the investigation were determination of fetal well being, gestation, and viability in that order.

## DISCUSSION

The major findings in this study are that the major indications for ultrasound scan in pregnancy are determination of fetal well being, gestation, viability and gender in that order. It also shows that the time of first ultrasound is mostly (44.9%) in the third trimester.

The limitation of the study is that it is a questionnaire study and in cases where the present scan was not the first, the patient relied upon memory for the determination of the timing of the first scan. Finally some of the referral forms

were poorly completed and had multiple indications.

Most of the patients were in the 20-30 age group. This is similar to the finding by (Okafor et al, 2008) and is not surprising as this is the most common age group in the antenatal population in the environment. The mean age of  $28\pm 5$  is similar to  $30.1 \pm 4.5$  recorded by (Enakpene et al, 2009). The proportion of women with tertiary education ( 55.6%) in this study is similar to 61.7% recorded in the study from Ibadan (ENAKPENE et al, 2009) but is much more than 24.7% recorded in Nnewi (OKAFOR et al, 2008). The high proportion of patients with tertiary education seen may be explained by the relatively higher number of tertiary institutions in those towns and the fact that uptake of antenatal care is more prevalent in educated women. In this study students constituted the largest group (26.8%) as opposed to traders (44.8%)(OKAFOR et al, 2008 )and artisans (39.2%) in the study by ENEKPENE et al 2009). The major reasons for requesting for ultrasound scans were the determination of fetal well being, gestation, viability and gender determination in that order. This is quite different from the findings by OKAFOR et al, 2008 where viability (22.9%) and malpresentation (16.5%), and "no clear reason? Routine" (13.8%) constituted the three commonest indications. On the other hand another study (ENEKPENE ET AL, 2009) showed that the commonest reasons were to check fetal viability 64.7%, determine fetal gender 22.6% and to rule out multiple pregnancy 5.3%. It is difficult to draw conclusions or make direct comparisons between studies because indications are not standardized and request forms were not always properly completed. This is illustrated in the study (OKAFOR et al, 2008) where 13.8% did not give any clear reason for the request. In addition the listing of many indications on one request form further compounded issues. However whether the scan was done for viability or to ascertain fetal well being both were meant to allay anxiety associated with pregnancy (BJELICA et al, 2004, ADEWUYA et al, 2006) .Thus scans done to allay anxiety could be said to be the most common reason for scanning in the three studies cited.

The mean gestation at first scan was  $23.08\pm 10$  weeks and most scans (41.6%) were done in the third trimester while only 26.4% (66/250) were done before twenty two weeks .Such practice is unsatisfactory and falls short of what obtains in the developed countries as it misses the opportunity for the most accurate

dating, viability, number and congenital abnormalities like Down’s syndrome. Most patients also missed the ideal opportunity for an anomaly scan and its beneficial effects on perinatal mortality (KONGNYUY E et al 2007)

In conclusion most patients were seen late, after the ideal time for an anomaly scan. The most common indication for scanning was the determination of fetal well being while anomaly scan did not feature at all as an indication for scanning. The study demonstrates that there is a need to educate healthcare practitioners on the advantages of first trimester and anomaly scans since only 10-15% of fetal malformations occur in pregnancies considered to be at risk (PAPP and FAKETE, 2003). This will help to improve the high perinatal, mortality rates seen in developing countries. There is also a need to repeat similar studies in other parts of the country.

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**TABLE 1**  
**Demographic characteristics of the study population**

	NO	%
<b>AGE</b>		
0-19	10	4
20-29	145	58.0
30-39	89	35.6
40+	4	1.6
Not stated	2	0.8
<b>PARITY</b>		
0	103	93.2
1-4	131	52.4
5+	13	5.2
Not stated	3	1.2
<b>MARITAL STATUS</b>		
MARRIED	233	93.2
SINGLE	17	6.8
<b>EDUCATION</b>		
Primary	10	4
Secondary	98	39.2
Tertiary	139	55.6
Not stated	3	1.2
<b>REFERRED BY</b>		
SELF	61	24.4
DOCTOR	175	70.0
NURSE/OTHERS	14	5.6
<b>GESTATION ATFIRST SCAN</b>		
1 <sup>st</sup> Trimester	62	24.8
2 <sup>nd</sup> Trimester	84	33.6
3 <sup>rd</sup> Trimester	104	41.6