Assessment OF Knowledge and Expectations for ultrasound examination as a standard element of antenatal care among Pregnant Women in Iraq

Ronak Taher Ali[1], Saleh Omer Haji Awla[2] ,
Aza Ismail Abd[3], Hemin Ayob Hameed[4] , Hataw Najmalden Mohammed[5]

1- a-Department of Pharmacology & Medical Physics, College of Medicine, Hawler Medical University, Erbil, Kurdistan Region Government, Iraq - runak.tahr@hmu.edu.krd
b- Department of Physiotherapy, Faculty of Applied Science, Tishk International University, Erbil, Kurdistan Region Government - Iraq.
2- Department of Medical physics, Collage of Science, Salahaddin University, Erbil, , Iraq
3- Department of Radiology, Erbil medical technical institute, Erbil Polytechnic University, Kurdistan Reign Government, Erbil, Iraq
4- Department of X-Ray& Sonar , Collage of Medical Technology, University of Al-kitab, Iraq
5- Department of Medical physics, Collage of Science, Salahaddin University, Erbil, Kurdistan Reign Government, Iraq

ABSTRACT

Background and objectives: The ultrasound scan is now a widely used technique in prenatal treatment. We attempted to assess pregnant women's knowledge and expectations regarding the use of ultrasonography during pregnancy in Iraq. To assess pregnant women's knowledge and expectations regarding the use of ultrasonography during pregnancy in Iraq.

Methods: We completed a cross-sectional survey of pregnant women seen in Azadi Teaching Hospital Sonography Department and private clinic in Iraq, Iraq. The datacollection was conducted in May - June 2021. The study population Consists of all pregnant women that visit this Department for obstetric ultrasound Scans. Only pregnantwomen that came for obstetric scan were added in the study exclude other scans such asabdominal or renal scans. The final sample size was 81 participants.

Results: From the total 81 participants, table 3.1 shows that the majority of the pregnant mother was 51.9% younger than 30 years, 48.1% Older than 30 Years. In the same cases, 37% of pregnant women were in their 1st semester, 39.5% of pregnant women were in their 2nd semester and 23.5% of pregnant women were in their 3rd semester.

Conclusions: The study established that most of the participants are informed of the ultrasound scan. The subjects also believed that the procedure is safe and the main purpose for performingit is fetal wellbeing and viability.

Keywords: Knowledge, Ultrasound, Pregnant women & Learning

INTRODUCTION

Throughout the world, ultrasound examination during pregnancy has become a standard element of antenatal care. This technology is a valuable tool for obstetricians in reassuring their patients about the safety of their fetus in the womb. It is especially beneficial in the management of high-risk pregnancies, although it is also frequently used in low-risk pregnancies for detecting congenital deformities in the fetus, locating the placenta, and assessing the fetus's presentation and well-being. Ultrasonography is a way for a pregnant lady to communicate with her baby, and there is a feeling that it helps the baby bond.[1 &2].

Ultrasonic imaging is a method of creating pictures by using a high-frequency vibration. Sound is a mechanical form of energy that vibrates. Ultrasound for medical imaging is produced in specific crystalline materials capable of vibrating at millions of oscillations per second when electrically energized. The instruments that produce and detect ultrasound are known as transducers [3], as seen in (figure 1). Based on the piezoelectric effect, an ultrasonic transducer transfers electrical energy into mechanical (sound) energy and back. The hand-held portion of the ultrasound equipment is in charge of producing and detecting ultrasonic waves. [4]

Ultrasonography, as a diagnostic radiological procedure, has a high level of patient acceptance [1]. It's widely used to figure out a fetus' gestational age, femur length, abdomen circumference, head circumference, cerebellum transverse length, and other anatomical parameters [5]. Ultrasonography is the leading examination for the detection of fetal abnormalities during pregnancy, particularly in the second and third trimesters. Over the last 15 years, three- and four-dimensional (3D/4D) ultrasound has undergone dramatic technical improvements resulting in an enhanced diagnostic accuracy of ultrasonography in daily obstetrics practice [6]. The application of 3D/4D ultrasound has been proven to have contributed to an increased diagnostic accuracy when applied to the study of the central nervous system (neuroscan), cardiac anatomy, and orofacial malformations [7,8]

The use of ultrasonography in pregnancy has various advantages, such accurate dating, implantation, viability, early diagnosis of multiple births, fetal growth assessment, fetal anomaly detection, and aberrant placentation. However, the possible hazards of any technique should not be overlooked. Pregnant women frequently ask healthcare providers about the safety of ultrasound use. "Ultrasound is non-invasive and has been used for nearly 50 years, so it must be safe," is a common response. While there is some truth in this answer, there is no such thing as total safety, and there is a need to educate professionals about the potential biological effects of ultrasonography. [9]

The thermal and non-thermal ways by which ultrasound affects tissues can be divided into two major categories. Non-thermal processes are acoustic impacts that cause biological effects without creating high temperatures. Non-thermal mechanisms produce "mechanical effects," which normally do not affect the fetus since they are created by very small air bubbles that are not present in embryonic tissues. Thermal mechanisms are sound effects that influence tissues by warming them over typical physiological temperatures. Heat has a variety of effects on tissues. The quick increase in heat generated by a centralized high-intensity ultrasound, for example, can easily annihilate anything in its focus. Ultrasound absorption at lesser levels can cause heat in that position. Such sweltering temperatures [1]

Sonography has a wide range of medical applications, which are still developing [10]. It has had a transformative impact on gynecological practice. For numerous reasons, including a more efficient and cost-effective service linked with improved patient satisfaction, the practice has become more office and ambulatory based. Although both transabdominal sonography (TAS) and transvaginal or endovaginal sonography (TVS) have been available for decades (figure 2), the transvaginal method has had the greatest impact on practice.

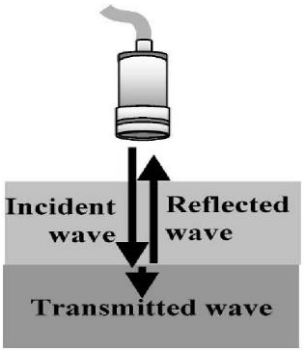

Figure 1: principle of pulse-echo ultrasound imaging.

Figure 2: (A)Typical Range of Curvilinear Abdominal Transducers, (B) Typical transvaginal ultrasound transduce

DOI: https://doi.org/10.15218/crewh.2022.02

METHODS

We completed a cross-sectional survey of pregnant women seen in Azadi TeachingHospital Sonography Department and one private clinic in Iraq, Iraq. The datacollection was conducted in May - June 2021. The study population Consists of all pregnant women that visit this Department for obstetric ultrasound Scans. Only pregnantwomen that came for obstetric scan were added in the study. exclude other scans such asabdominal or renal scans.All respondents were aware that the questionnaire is for scientific research and will be published in the future, and their information will be part of the work.The final sample size was 81 participants.

The questionnaire consisted of three parts, the structure of the first part was age, weight,months of pregnancy, a place the respondent wanted to give birth to, Occupation, education level of the pregnant woman, and her Partner. The structure of the second partcomes from one question which was what is the aim of ultrasound scan. Last part consistsof multiple Yes/No questions.

All Data were recorded in google form and exported to excel Sheet and checked visuallyafter that were coded and it was finally imported to Statistical Package for the Social Sciences (SPSS) version (26.0) for analysis. Frequencies, percentages, Statistics such asstandard deviation, mean and P values were examined for describe data.

RESULTS

From the total 81 participants, table .1 shows that the majority of the pregnant mother was 51.9% younger than 30 years, 48.1% Older than 30 Years. In the same cases,37% of pregnant women were in their 1st trimester, 39.5% of pregnant women were in their 2nd trimester and 23.5% of pregnant women were in their 3rd trimester.

Table 1: Sociodemographic Information of Participants (n=81)

Variable	Category	Frequency	Percent	P
Age	< 30	42	51.9 %	0.4832
	≥ 30	39	48.1 %	
Weight	52-65	17	21 %	0.4990
	66-80	55	67.9 %	
	81-90	9	11.1 %	
Trimester	1st Trimester 2nd Trimester3rd Trimester	30	37 %	0.4932
		32	39.5 %	
		19	23.5 %	
Educational Level of Lady	Unable to Write and ReadWrite and Read	4	4.9 %	0.5317
		7	8.6 %	
	Primary School	29	35.8 %	
	University	41	50.6 %	
Partner's Educational Level	Unable to Write and ReadWrite and Read	2	2.5 %	0.5399
		14	17.3 %	
	Primary School	13	16.0 %	
	University	52	64.2 %	
Lady's Occupation	Employed	29	35.8 %	0.4931
	HousewifeOther	41	50.6 %	
		11	13.6 %	
Giving Birth In	Government Hospital Private Hospital Home	30	37.0 %	0.4864
		19	23.5 %	
	No Decision	9	11.1 %	
		23	28.4 %	
Health Complication	Headache Vomiting Loss Appetite	17	21.0 %	0.4968
		26	32.1 %	
	Other	13	16.0 %	
		25	30.9 %	

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As appearance in table .2 usually pregnant ladies visit a gynecologist and making an ultrasound scan to confirm fetal sex 29.6%, to confirm pregnancy 29.6% and have fear of congenital diseases (baby's health in general) 28.4%.

Table 2: Participant's Reasons for Making Ultrasound Scan

Making Ultrasound	Frequency	Percent
To Confirm Fetal Sex	24	29.6 %
To Confirm Pregnancy	24	29.6 %
To Recognizing Number of Babies	10	12.3 %
For Satisfaction Every Thing is Well	23	28.4 %
Total	81	100%

Table .3 showing that in these days about 80.2% pregnant lady's spatially has good knowledge about ultrasound scan which our participants approve that.

Table 3: Random questions with participants

Question	Answer	Frequency	Percent
Did You Ever Do Ultrasound Scan?	YesNo	65	80.2 %
		16	19.8 %
Do You Have a Knowledge About Ultrasound?	YesNo	37	45.7 %
		44	54.3 %
Having a Chronic Disease?	YesNo	29	35.8 %
		52	64.2 %
Pregnancy Complication in Past?	YesNo	40	49.4 %
		41	50.6 %

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Figure 3: Three trimesters in pregnancy.

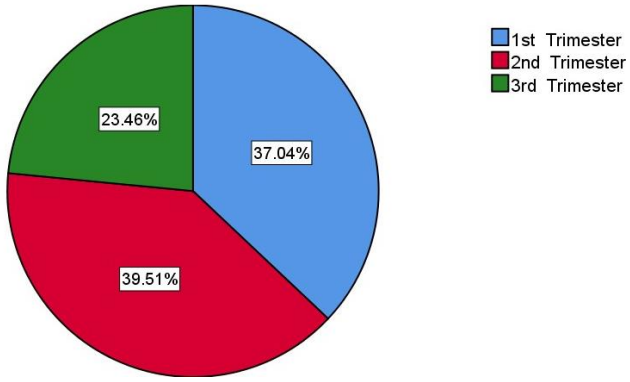


Figure 4: Lady's educational level.

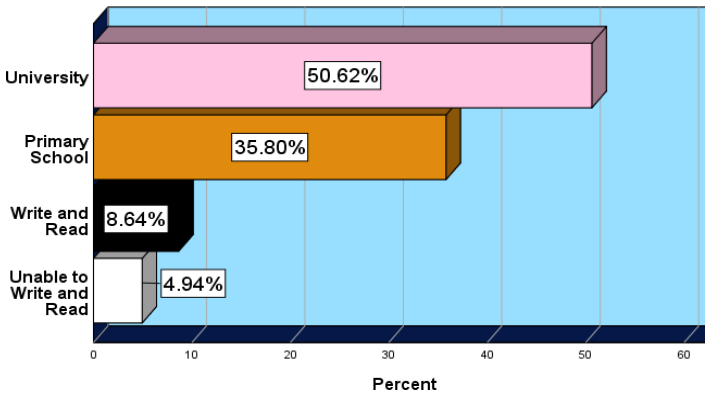


Figure 5: Educational level of partner.

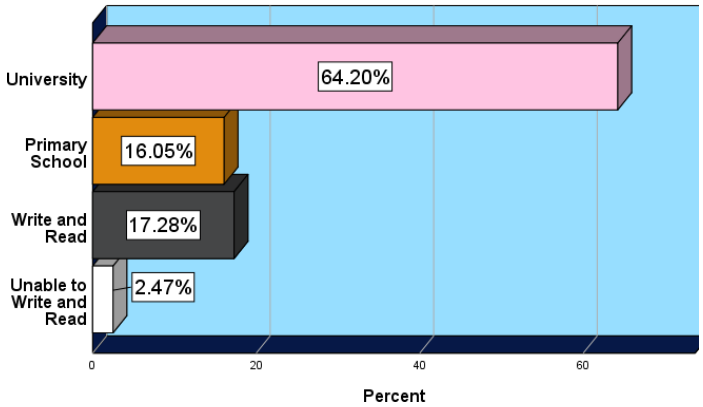


Figure 6: Occupation of pregnant women.

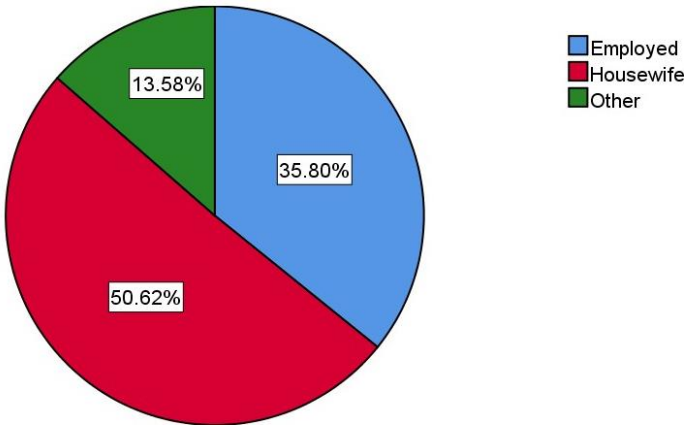


Figure 7: Lady's decision for giving birth.

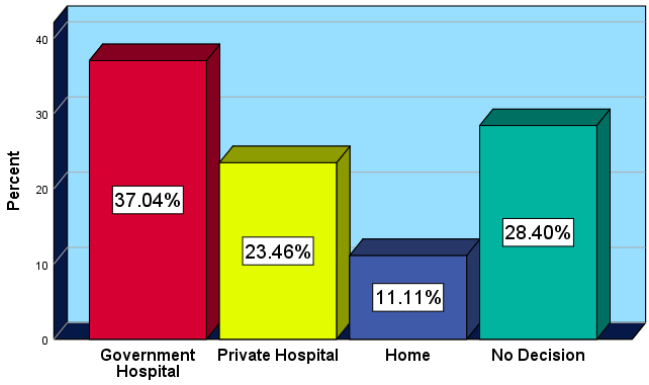
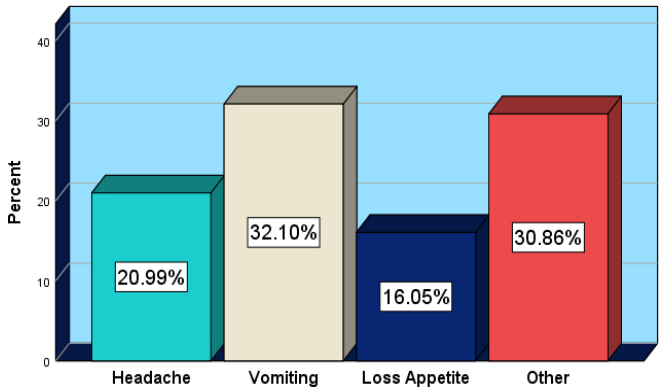


Figure 8: Pregnant women health complications.



DISCUSSION

This cross-sectional study was conducted at Azadi Teaching Hospital sonography department and some cases at private clinic in Iraq, for estimate the knowledge levelsand expectations of pregnant lady's about using of the ultrasound during pregnancy. Ultrasound scanning or imaging is firmly embedded in antenatal maternity care all over the world[11]. Especially, the 18–23 weeks anomaly scan has become a vital part of antenatal care [12].Clinical evidence suggests that such a practice improves the effectiveness of clinical management [13].

Regarding their knowledge about the use of obstetric sonography, all women expressed some level of knowledge about obstetric sonography. This is partly due to the wide use of ultrasound in health care today as part of routine antenatal care aswell as the unlimited access to information. However, the kind of knowledge these women have again varies mainly due to their level of education [14].We found out that younger pregnant women have a good knowledge and information about the procedures and taking care of her and baby's health.

There is a clear difference between selective and routine use of ultrasound, however. the timing of the scan during pregnancy, the time taken, the details inspected, the sophistication of the equipment used and the experience of the ultra-sonographer vary with the reason why the scan is being done. the value of the selective use of ultrasound screening for specific indications, such as possible fetal malformation, placental position and multiple pregnancy, has been clearly shown. evidence that supports the routine use of ultrasound for antenatal screening of normal pregnancy has not yet been firmly established in spite of its widespread use [15].

Based on existing evidence, routine ultrasound in early pregnancy appears to enable better assessment of gestational age, early detection of multiple pregnancy and detection of clinically unsuspected fetal malformation at a point when early termination of pregnancy is still possible [16]. The social use of ultrasound to find out the sex of the baby was important for almost all the women [17] which is 29.6% of pregnant women in Iraq and 29.6 % to Confirm Pregnancy while 28.4 % for satisfaction everything is well.

CONCLUSIONS

The study established that most of the participants are informed of the ultrasound scan. The subjects also believed that the procedure is safe and the main purpose for performing it is fetal wellbeing and viability, but still for fulfilling the sustainable goal and to make sure the bright future of our nation at first, we should work for pregnant women's health or Antenatal Care.

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