Perceptions and Expectations among Pregnant Women Receiving Second-Trimester Ultrasound Scans at Jordan University Hospital

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Abstract

Objectives: To evaluate women's information about the purpose of the second-trimester ultrasound scan, their expectations before the scan, the extent to which these expectations are fulfilled after the scan, and their perceptions of the foetus.

Methods: A sample of pregnant women (540) attending a second-trimester ultrasound scan at Jordan University Hospital were asked to complete two parts of a questionnaire during a 3-month period in 2011. The first part included patients' characteristics, the purpose of the scan, and expectations before the scan. The second part included patients' perceptions of the foetus and how the expectations of the scan were fulfilled.

Results: Both parts of the questionnaires were completed by 503 (93%) of the women. Three fourths of the participants were accompanied by their husband or a family member. Sixty (12%) women were referred specifically to rule out congenital anomalies. Comparison between patients' expectations before and after the scan using the chi-square test showed significant improvement in all expectations variables (P–value < 0.001).

Conclusion: A routine second-trimester ultrasound scan is an important event for most participating women. Improvements are required in the provision of pre-ultrasound information.

Keywords: Routine ultrasound, perception, expectations, Jordan.

(J Med J 2013; Vol. 47 (1):73- 79)

Received	***Accepted***
April 15, 2012	*May 10, 2012*

Introduction

Second-trimester scanning has become a routine element of antenatal care in Europe and the United States.[1,2] This scan may be used as a screening tool or as a definitive diagnostic test. It has been shown to have psychological sequelae, from providing reassurance about foetal well-being to shattering hopes of a healthy pregnancy.[3]

The population of Jordan is 5.7 million, with a median age of 20.1 years.[4] Although Jordan is classified by the World Bank as a lower middle-income country in terms of health, Jordan is

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considered a leading country in antenatal care, alongside high-income countries. Ninety-one percent of pregnant women have at least 4 antenatal care visits during each pregnancy, and all births are attended by skilled health personnel.[4] Detailed second-trimester ultrasound scanning began in the early 1990s in a few hospitals in Jordan. Ten years later, this service has been expanded to include specialized foetal-maternal units with high-quality ultrasound equipment.

The international literature is rich with studies of women's views on ultrasound in Europe and North America, but little research has been published on other countries.[5] In Arab countries, the only attempt to research this topic was a study in Syria that explored women's views, perceptions, and experiences of ultrasound imaging in pregnancy.[6]

The present study was conducted to evaluate the following variables among women receiving a detailed second-trimester routine ultrasound scan: the perceived purpose of the ultrasound scan, the women's expectations before the scan, the fulfilment of these expectations after the scan, and the women's perceptions of the foetus during the scan.

Patients and Methods

This study was conducted at the Department of Obstetrics and Gynaecology at Jordan University Hospital during a 3-month period in 2011. Information before the scan was given verbally in the antenatal clinic by either an obstetric consultant or a registrar in the clinic. No written information sheets were provided at this clinic. This study was approved by the Medical Research Committee at the University of Jordan and Jordan University Hospital.

All pregnant women attending a routine second-trimester scan during the study period were asked to participate. A two-part questionnaire was provided. The first part of the questionnaire was completed before the scan, and the second part was completed immediately after the scan. The exclusion criteria included women who failed to complete the second part of the questionnaire or who were found to have a missed abortion.

A modified questionnaire from the Uppsala University, Sweden [7] was translated into the Arabic language and was adopted for this study. The first part of the questionnaire included questions about the patient's characteristics (maternal age, education level, type of medical insurance, consanguinity, and accompanying person during the scan), obstetric history (parity, previous miscarriage), purpose of the scan, and expectations before the scan. The second part of the questionnaire included the patient's perceptions of the image of the baby during the ultrasound scan and the extent to which the patient's expectations were fulfilled after the ultrasound scan.

The scan was performed in a relaxed manner and lasted approximately 20-30 minutes. The patient and her accompanying person (husband or other family member) were allowed to watch the foetus on a separate screen. The scan included an assessment of foetal growth, placental location, estimation of the amount of amniotic fluid, and a detailed anatomy of the foetus. Colour, four-dimensional pictures, a written report, and a hard copy of the scan were given to the patients at the end of the examination.

Descriptive statistics were used for the patients' characteristics, their opinions about the purpose of the ultrasound scan, and their perceptions of the foetus during the scan. A chi-square test was applied to compare the patients' expectations before and after the scan; values of $p < 0.05$ were considered statistically significant. The analyses were performed using the SPSS package version 16.0.

Results

Five hundred and forty unselected consecutive women attending a routine second-trimester ultrasound scan were asked to participate. Thirty-five women refused to participate or did not

complete the second part of the questionnaire,and two women had missed abortions diagnosed at the scan. In total, 503 (93%) women completed both parts of the questionnaires, and their data was available for the analysis. The mean age was 29 (range 19-42) years. Most of the women had medical insurance, nearly one-half (54%) had a diploma degree, and one-fourth had only a secondary school or less level of education. A variable degree of consanguinity with their partners was reported by 21% of the participants. Nearly three-fourths of the participants were accompanied by their husband or a family member. Thirty-eight percent of the women had no children, one-fourth had one child, and the remainder had two or more children. Most of the participants (68%) had no previous miscarriages, one-fifth had previously experienced one miscarriage, and only 5% had three or more miscarriages (table 1).

Table (2) presents the patients' opinions regarding the purpose of the morphology scan. Almost half of the patients were asked by their doctor to complete the scan as a routine procedure, 12% were referred specifically to rule out congenital anomalies, and almost one-third (36%) requested the scan. One-fifth of the patients had either had the scan performed previously or had heard about it from a friend. Complications in previous pregnancies were reported by 17% of the patients. Exposure to medication or radiation in the first trimester was the reason for referral in approximately 10% of the patients. A personal or family history of inherited diseases was reported by 10% of the patients.

Table (1): Patient Characteristics.

Variables	***n = 503***	
	n	***(%)***
Age (years)		
< 35	*434*	*(86)*
> 35	*69*	*(14)*
Medical insurance		
Insured	*399*	*(79)*
Not insured	*57*	*(11)*
No answer	*47*	*(9)*
Education level		
Secondary school or less	*118*	*(23)*
Diploma	*247*	*(54)*
Bachelor	*76*	*(15)*
Missing	*35*	*(7)*
Consanguinity		
Relative	*108*	*(21)*
Not relative	*386*	*(77)*
No answer	*9*	*(2)*
Accompanied person		
Yes	*363*	*(72)*
No	*126*	*(25)*
Missing	*14*	*(3)*
Parity		
Nulliparous	*190*	*(38)*
Para 1	*127*	*(25)*
Para 2	*84*	*(17)*
Para 3	*57*	*(11)*
Para 4	*20*	*(4)*
Para 5 or more	*25*	*(5)*
Previous miscarriage		
No previous miscarriage	*340*	*(68)*
One miscarriage	*101*	*(20)*
Two miscarriages	*36*	*(7)*
Three or more miscarriages	*26*	*(5)*

Table (2): Women's opinions about the purpose of the ultrasound scan.

Patients expectation	***Total n = 503***	***(%)***
My doctor asked me to do it as a routine.	*258*	*(51)*
My doctor asked me to do it to rule out congenital anomalies.	*60*	*(12)*
I asked my doctor to do it.	*183*	*(36)*
I had it previously.	*103*	*(20)*
I heard about it from a friend.	*113*	*(22)*
Complication in previous pregnancy	*83*	*(17)*
Exposure to a medication in the first trimester	*37*	*(7)*
Exposure to radiation in the first trimester	*16*	*(3)*
Personal history of inherited disease	*34*	*(7)*
Family history of inherited disease	*15*	*(3)*

Expectations before and after the scan were compared. These expectations included obtaining a clear photo, being less worried about foetal health, attachment to the baby, ensuring that the baby had no congenital malformations, obtaining information about the sex of the baby, the expected date of delivery, and learning about the baby and delivery. The patients' expectations before the scan and their fulfilment after the scan are shown in table (3). There was a significant improvement in all of the expectations investigated.

Most of the women reported seeing the heart, movement, the head, and the limbs of the baby. Approximately two-thirds of the patients requested help understanding what they saw, but only 39 patients (8%) did not understand what they saw (table 4).

Table (3): Women's expectations before and after the ultrasound scan and to what extent these expectations were fulfilled.

Patient Expectations	***Before scan n (%)***	***After scan n(%)***	***P- value****
Getting a clear photo of the baby	*227 (45)*	*418 (83)*	*< 0.001*
Being less worried about the health of the baby	*330 (66)*	*427 (85)*	*< 0.001*
Feeling attached to the baby	*167 (33)*	*395 (79)*	*< 0.001*
Sure no congenital anomalies	*294 (58)*	*453 (90)*	*< 0.001*
Knowing the sex of the baby	*155 (31)*	*424 (84)*	*< 0.001*
Knowing the expected date of delivery	*138 (27)*	*279 (55)*	*< 0.001*
Learning more about the baby and delivery	*220 (44)*	*351 (70)*	*< 0.001*

Table (4): Women's perceptions of the picture of the baby at the ultrasound scan.

Patient Perception	***n = 503***	***(%)***
Saw the heart beats	*465*	*(92)*
Saw the movements	*472*	*(94)*
Saw the head	*485*	*(96)*
Saw the limbs	*477*	*(95)*
Did not understand what I saw	*39*	*(8)*

Discussion

A second-trimester ultrasound scan is not offered routinely to all pregnant women in Jordan. Jordan University Hospital performs approximately 3,000 routine scans yearly. The scan is performed by a maternal foetal medicine specialist because the hospital currently does not have certified or trained sonographers.

There is reason to believe that this scan might be a cost-saving measure for the healthcare system.[8] However, the scan is not covered by most private insurance companies, which discourages women from obtaining it. In contrast, women who are under the umbrella of public health insurance are able to have this scan, but the small number of foetal maternal units in public hospitals and the large number of pregnant women make it very difficult for all women to receive this foetal scanning. In our study, 87% of the women who underwent this examination were insured.

Most Jordanian families are excited to attend the scan and to share this unique experience with the pregnant mother; 74% of the women were accompanied by a family member (husband or first-degree relative). Almost one-third of the women (38%) who underwent the scan were pregnant for the first time, with increases in parity inversely relating to the percentage of scans. Almost one-third of the screened women had previous miscarriages. This is consistent with the findings of a large, nationwide Swedish sample on routine second-trimester ultrasound screening, in which 43% of the study group were nulliparous and 22% of the study group had a history of previous miscarriage.[9]

Most studies show a deficit in women's knowledge about the purpose of the scan.[10,11] A study by Eurenius et al. about the knowledge among women and their partners attending a routine second-trimester ultrasound scan found that most emphasised the detection of congenital malformations as the purpose of the scan; 89% of the patients thought that one of the reasons for scanning was to detect malformations due to the description of the purpose of the scan in the hospital's information leaflets.[7] In contrast, in this study, only 12% of the patients reported that they were referred for the scan to rule out congenital anomalies. Half of the patients were referred as a routine procedure but were not aware that the scan would detect malformations, either because they were not told by their referring doctor or because the hospital did not offer information leaflets about the second-trimester morphology scanning.

This study found that watching the foetus on the screen was a positive and reassuring experience that led women to worry less about the baby's health after the scan. This observation is in agreement with several previous studies.[12-14] The impact of ultrasound scanning on women's attachment to the foetus has been inconclusive.[15] A survey of American sonographers showed that most of them believed that ultrasound with feedback strengthened maternal-foetal bonding.[16] In this study, the scan significantly increased the women's attachment to their babies.

Although screening for congenital malformations was not a recognised purpose of this study, the women's expectation (to determine whether the baby had malformations) was significantly fulfilled after the scan. This finding was similar to other studies [17-19] in which the majority of women expected that a second-trimester ultrasound scan would confirm that their baby was well.

A detailed routine second-trimester ultrasound scan by an experienced person, seeing a clear and distinct picture of the foetus at the scan, and verbal and visual information provided during the scan may explain why the screened women reported that their expectations were met regarding the sex of the baby, the expected date of delivery, and information about the baby and delivery. Only a few women (8%) reported that they could not understand what they saw, but approximately two-thirds of the patients required assistance in understanding what they saw. This assistance is beneficial because high-feedback ultrasound has been associated with positive effects.[12]

In conclusion, there is a deficit in women's knowledge about the purpose of the second-trimester ultrasound scan. Because this test is not considered routine antenatal care in Jordan and because of the lack of information leaflets, further efforts should be made to improve patients' understanding and the information offered by health providers about the ultrasound. This study shows that watching the foetus on a screen and receiving verbal and visual information from an experienced person during an ultrasound scan significantly improves the fulfilment of patients' expectations of the second-trimester ultrasound scan.

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دراسة توقعات وتصورات السيدات الحوامل لفحص الأمواج فوق الصوتية في الثلث الثاني من الحمل في مستشفى الجامعة الأردنية

الملخص

الأهداف: تقييم معلومات السيدات حول الهدف من إجراء فحص الأمواج فوق الصوتية الروتيني في الثلث الثاني من الحمل ودراسة توقعاتهن قبل الفحص ومدى تحقيق هذه التوقعات واشباعها بعد استكمال الفحص، بالإضافة إلى البحث في إدراك السيدات للجنين.

الطريقة: دعيت خمسمائة وأربعون سيدة حضرن لإجراء تصوير الأمواج فوق الصوتية في الثلث الثاني من الحمل في مستشفى الجامعة الأردنية لإكمال استبانة قبل الفحص وبعده خلال فترة ثلاثة أشهر في سنة 2011. وتكونت الاستبانة من جزأين: اشتمل الجزء الأول على بيانات السيدات الشخصية والهدف من إجراء الفحص وتوقعاتهن حول الفحص قبل اجرائه. واشتمل الجزء الثاني من الاستبيان على أمرين أولهما مدى إدراك السيدة لحالة الجنين وثانيهما كيف تم تحقيق تلك التوقعات.

النتائج: خمسمائة وثلاث (93%) سيدات استطعن إكمال جزأي الاستبانة، (75%) من المشاركات حضرن بصحبة الزوج أو أحد أفراد العائلة. أظهرت الاستبانة أن نسبة (12%) من السيدات تم تحويلهن للفحص لاستثناء التشوهات الخلقية.

وقد استخدم فحص كاي سكوير للمقارنة بين توقعات المرضى قبل الفحص وبعده الذي أظهر تحسنا مهما في جميع المعايير التي (p value) < 0.001 استخدمت لدراسة هذه التوقعات (الدلالة الاحصائية أقل من 0.001).

الخاتمة: يعد فحص الأمواج فوق الصوتية في الثلث الثاني من الحمل حدثا مهما لمعظم السيدات المشاركات في الدراسة، ومن ناحية ثانية، يجب العمل على تطوير وتوفير المعلومات الكافية للسيدات عن الفحص قبل إجرائه.

الكلمات الدالة: فحص الأمواج فوق الصوتية، التوقعات، الادراك، الأردن.