Europe PMC Funders Group
Author Manuscript
Reprod Health Matters. Author manuscript; available in PMC 2006 May 05.

Published in final edited form as:
Reprod Health Matters. 2005 May ; 13(25): 147–154.

Syrian Women's Perceptions and Experiences of Ultrasound Screening in Pregnancy: Implications for Antenatal Policy

Hyam Bashour[a], **Raghda Hafez**[b], and **Asmaa Abdulsalam**[c]

[a] Professor, Department of Family and Community Medicine, Faculty of Medicine, Damascus University, Damascus, Syria. E-mail: hbashour@scs-net.org

[b] Supervisor, Center for Research on Population and Health, Faculty of Health Sciences, American University of Beirut, Beirut, Lebanon

[c] Associate Professor, Department of Obstetrics & Gynecology, Faculty of Medicine, Damascus University, Damascus, Syria

Abstract

Ultrasound scanning is firmly embedded in antenatal maternity care around the world. This paper reports on a qualitative study carried out in 2003 of 30 Syrian women's perceptions and experiences of routine ultrasound in pregnancy. It was part of a larger study of the experiences of pregnancy and childbirth of 500 women from Damascus and its suburbs who had recently given birth to healthy newborns. The women had had multiple scans during pregnancy and accepted its use uncritically nearly all the time. The scans gave them reassurance that the baby was healthy, the pregnancy was progressing well and allowed them to learn the sex of the baby. The women also reacted positively to the antenatal educational messages that were conveyed using scans. However, we found the excessive use of this technology worrying. We believe private doctors, who attend 80% of pregnant women, use ultrasound primarily to attract women to their clinics and increase their income. We recommend that maternity care in Syria should be better regulated; that women and their doctors should be made aware of the essential components of antenatal care; that national guidelines for antenatal care should be developed and that Syrian women should be empowered to ask questions about pregnancy and childbirth and the care they receive.

Keywords

pregnancy; antenatal care; ultrasound scans; private clinics; doctor-patient relations; Syria

---

ULTRASOUND scanning or imaging is firmly embedded in antenatal maternity care around the world. 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 ultrasonographer 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.1 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. On the other hand, routine ultrasound in late pregnancy in low risk or unselected populations has not been shown to confer benefit on mothers or babies.2,3

Europe PMC Funders Author Manuscripts
Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

Furthermore, there are other, non-medical uses such as for sex determination or because the woman has requested a scan for her own reasons.

Many obstetric units and obstetricians in developed and, increasingly, in developing countries already practice routine ultrasound during pregnancy, and regard it as an integral part of antenatal care. In cases where the benefits have not been shown, the decision whether to do a scan must be considered against the theoretical possibility that ultrasound could have an adverse effect, not to mention the additional resources required.2 Villar et al argue for more effective resource allocation in developing countries, with priority given only to practices known to be effective for improving reproductive health.4

The profound psychological effects of ultrasound imaging on pregnant women, whether routine or selective, are well documented in the literature. An ultrasound examination has the potential to be a fascinating and happy experience for prospective mothers and couples, but diagnoses of fetal abnormality can be devastating, including if they are mistaken. The enjoyable aspects of having a scan, as described by women, include “meeting” the baby, sometimes with other family members, having visual confirmation of the reality of the pregnancy and gaining reassurance about the baby’s well-being. The impact of a false negative scan, the unexpected presence of a twin or the sex of the baby that is different from what the mother wants are all examples of the adverse effects on women.5

Available studies suggest that pregnant women’s views on the desirability of routine ultrasound are influenced by their perceptions of its potential benefits and concerns about possible adverse effects.6,7 The authors of a systematic review of 74 studies report that the attractiveness of ultrasound outweighs other concerns expressed by women, such as safety, over-medicalisation and excessive use.8

While the international literature is rich in studies of women’s views on ultrasound in Europe and North America, little has been published from other countries. Only one of the 74 studies reviewed by Garcia et al,8 was carried out in a developing country, namely Botswana.9 This is the first attempt in Syria to explore women’s views, perceptions and experiences of ultrasound imaging in pregnancy.

Background

Syria is a middle-income country in the Eastern Mediterranean region with General National Income per capita of US$1,130.10 National health expenditure accounts for 3.2% of GNP and is being used to modernise, improve and maintain the health care system. Syria’s public health care system is easily accessible and affordable. In parallel, the private sector is dominant. Issues of quality of care are of concern in both sectors. Women are free to choose their care providers and there is a non-regulated system of maternity care in the country. We have shown in previous work, however, that women prefer to go to private doctors because they are badly treated in the public sector; they also believe that *free* services cannot offer anything good.11

According to the recent Pan-Arab Project Family Survey (PAPFAM Survey) of 2001, 71.9% of Syrian women received antenatal care, most of which was provided in private clinics (79.5%). Only 6.6% received care at public health centres. Of those who had antenatal care, 82.6% said they had had ultrasound screening during pregnancy.12

Ultrasound facilities are widely available all over the country and the use of ultrasound is nearly universal in the private clinics of obstetricians. Although ultrasound is not available in many of the public health centres that provide antenatal services, data show that the use of antenatal care increased in public health centres after antenatal clinics were equipped with

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

ultrasound.13 There is no systematic information on the type of ultrasound equipment being used, but new machines are being introduced into the market quite rapidly (Personal communication, S Cheikha, 2004).

This paper reports on a qualitative study that aimed to explore Syrian women's views, perceptions and experiences of routine ultrasound in pregnancy. It was part of a larger study of women's experiences of pregnancy and childbirth and their preferences on type of caregiver.

Methodology and participants

The larger study, carried out between February and September 2003, gathered both quantitative and qualitative data. The quantitative data covered a total of 500 mothers of healthy newborns from Damascus and the surrounding area. They were recruited using the official birth register* and interviewed using a semi-structured questionnaire. Thirty women were selected from among the 500 to include a varied sub-sample in terms of place of residence (urban vs. rural) and place of delivery (hospital/clinic vs. home). They were asked if they would participate in an in-depth interview and gave verbal consent to participate in the study.

The interviews were held in the women's houses, and were carried out by a female interviewer who was trained for this purpose by one of the authors (anthropologist). The interviewer was accompanied by a female sociologist, one of the people who had carried out the semi-structured interviews and was acquainted with the local culture and dialect. An interview guide was developed in Arabic and was used to ensure that all topics considered necessary for the purposes of the study were covered, including the feelings of the woman towards ultrasound imaging and its importance, her interaction with the person performing the scan and anything relevant that had happened after the scan. The interviews lasted 60–75 minutes and were tape-recorded and later transcribed, using the local dialect. All responses were reviewed and analysed using the method of thematic coding.

Of the 500 women in the larger study, 97.9% had experienced antenatal ultrasound as part of routine screening during their last pregnancy. Private obstetricians did the ultrasound in 94.8% of cases. Ultrasound was done upon the request of the women in 15.1% of cases; the rest were initiated by the doctor. The crude mean was 5.5 scans per woman; the median was 5 scans, with a maximum of 20 scans. All 30 women in the sub-sample had ultrasound scans, with a range from 2 to 12 scans.

Six of the 30 women were under 20 years of age, 19 were 20–30 years old and five were over 30. Seven of them had six years of schooling or less; 17 had 7–12 years of schooling and six had more than 12 years of schooling. Only three of them worked outside the home, as teachers or clerks; the rest were housewives. More than half (16) of the women's husbands worked as labourers.

Results

Ultrasound provides comfort and marital security

The positive tone of women when they articulated their ultrasound experiences was very clear in our findings. The visualisation of the fetus was a major source of pleasure, comfort and reassurance for them.

*Methods used to recruit the 500 women and their characteristics are described elsewhere.14

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

"*I feel comfortable. The scan makes me feel psychologically relieved. There is no point in going to the doctor if the scan is not available…It is my duty to go every month and follow up the situation of the fetus.*" (Woman 2)

"*The scan comforts me. It is very important. My sister ignored going to check her pregnancy and she delivered a baby with a congenital anomaly.*" (Woman 1)

"*I like to see the baby every month so that I can find out about the status of my baby girl in my belly: her movements, her heartbeats, the size of her head and whether any anomalies exist.*" (Woman 9)

Fears of birth defects were quite common among the women, and it was evident that ultrasound reduced their feelings of anxiety.

"*I want to make sure that the baby does not have any malformations. This, of course, is the most important thing for me. In my previous pregnancies, I did not think much about anomalies. But these days diseases and anomalies are increasing. I pray all the time. I say: 'Please God…a healthy baby with no malformations'. I do not care if the baby is a girl or a boy. All I want is a healthy baby.*" (Woman 5)

A few women saw ultrasonography as a way of getting their husbands involved in childbearing, to enhance not only the father–child bond, but also the marital relationship by bringing the couple closer together. One educated young woman experiencing her first pregnancy and accompanied by her husband to the antenatal visit said:

"*It gives me a sense of security. With the first look at the fetus, even my husband would directly feel a sense of parenthood. He will be encouraged and you can feel that he has changed into a responsible person. Men should be involved in women's matters. They should not stay removed from them.*" (Woman 2)

Perceived benefits and harms of ultrasound

The women who participated in the study had multiple scans during pregnancy; they felt these were necessary to check on their pregnancies, and they were highly valued by the women. In fact, diagnosis of pregnancy was the main reason why the women went to their first antenatal visit, as they considered ultrasound the most accurate technique to diagnose pregnancy.

"*The scan is a must [to diagnose pregnancy]!*" (Woman 1)

"*I used a good pregnancy test. I bought the best brand! Then I went to my doctor to make sure I was pregnant.*" (Woman 12)

Another perceived benefit was the sense of reassurance of the normality of the baby.

"*The scan is very necessary; there is no point in visiting the doctor without seeing the fetus and knowing how well it is doing. You would not benefit at all!*" (Woman 19)

"*I want to make sure that the baby is well.*" (Woman 30)

Concerns about adverse effects of ultrasound rarely emerged; only two women mentioned possible harm from the scan:

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

"*I did not listen to my doctor. She asked me to go every month to check on the fetus but I went every second month. The ultrasound might harm me! The only time I went monthly was in my first pregnancy.*" (Woman 18)

"*I went quite late in my pregnancy; I wanted to make sure that I was beyond two months. You see, I've heard ultrasound is not good in the first months of the pregnancy.*" (Woman 8)

"*Yes, it is very important to go to the doctor and have the scans. My sister-in-law told me that she is afraid of the radiation and she only goes every second or third month. You see, I am different… I go every single month, and at the beginning of the month [when salaries are paid] you will find me planted at the clinic.*" (Woman 19)

Ultrasound and sex determination

The issue of determining the sex of the baby seemed very important for the women despite the fact that they did not always directly articulate their desire to acquire that information from their doctors. They expressed a sense of relief if the sex of the baby matched their preferences.

"*I was so happy to learn that I am carrying a baby girl. I have two boys and now a girl; so my family will be complete. There is no need for another pregnancy.*" (Woman 20)

Having a male child in the family is essential in the local culture. However, learning that she is having a baby boy may or may not be a major source of happiness and reassurance to a woman, whose preferences may not match those of their husbands or extended families.

"*I asked the doctor about the sex of the baby. I was so happy to learn that it was a baby boy. I went home and informed everybody there. They were so happy. This is my first pregnancy, you see. It is good to know that a baby boy is coming!*" (Woman 21)

"*I like baby girls. I was not happy to learn that the baby was a boy. Others, like my in-laws, were so happy… they like boys.*" (Woman 26)

Doctors' approaches to telling women the sex of the baby were different and very much affected women's experiences.

"*My doctor tells you indirectly about the sex of the baby. She refuses to say what the sex of the baby is directly, which is a religious belief for her. She tells you indirectly so you can guess the sex of baby. For example, she… kept telling me that "he" will be nice, will be a boxer, and will also be good and independent.*" (Woman 2)

"*I like that doctor; she is really nice and gentle. She would not inform you about the sex of the baby abruptly. Imagine a lady who has four girls and no boy and the doctor telling her that she is having a baby girl again! She usually asks the woman what she would like to have and then she informs her softly about the sex of the baby.*" (Woman 13)

One woman was disappointed with the doctor who refused to tell her the sex of the baby, as she then had to go to another doctor to find out. In other instances, women were too shy to ask the doctor about the sex of the baby or to look at the screen during the scan.

"*I wanted to see the baby but I was too shy to ask the doctor… because he was a male doctor, but if it had been a woman I would have talked to her and I asked her. I know that other doctors show everything to the woman on the scan, but I kept going to that doctor anyway because he was competent. He is famous!*" (Woman 23)

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

Communication of the results of the scan

We also asked the women about how their doctors communicated with them about the scans. Both the style of communication and the competency of their doctors were important to the women. They were pleased if their doctors interacted nicely with them when performing the scan, and were attracted to the doctors who shared with them the *picture* of the fetus.

"*I was so happy that day. I came back home with the picture [film] of my fetus. My doctor gave it to me so I could prove it was a baby boy who was doing fine. I was really happy.*" (Woman 21)

It also seemed that the women reacted positively to the educational messages that are an essential part of antenatal care, that were conveyed and reinforced using the scans.

"*If the doctor saw that the fetus was not growing well, she would tell you that you should improve [your] nutrition. That is why I started drinking two cups of milk every morning and evening. She told me to eat well; if not, the baby would not grow well. I feel very comfortable with this doctor, who keeps explaining and showing me what is going on.*" (Woman 26)

One woman was annoyed that her doctor did not inform her he would be doing a scan:

"*You see, he is rushing and does the scan without even asking.*" (Woman 5)

Perceived competence of the doctor

Two women felt that ultrasound was not a highly skilled technique and did not need a great deal of competence.

"*I went to this doctor because [her clinic] is close by. She is a beginner… but I heard she was good… from our neighbour. I felt so relaxed with her… She is not well-known. People run to see well-known doctors, but I am only a pregnant woman. I only want an ultrasound! So it isn't necessary for the doctor to be well-known or experienced.*" (Woman 30)

"*They say [the doctor] is experienced. Well, I don't know if she is experienced or not. In treatment, she is not… I once accompanied my sister-in-law [to her clinic] when she was nine months pregnant. She told her that she needed a caesarean section… My sister-in-law got so scared. So we went to another doctor who told her that she could have a normal delivery…[The doctor] also scared me when I was "bint".[*] She made a big deal out of nothing when I saw her… So I do not like this doctor. I feel, however, that she correctly diagnosed the sex of the fetus in my first month. That is why I went to see her.*"[†] (Woman 3)

Two others discovered that doctors could misread scans or fail to explain their meaning fully in quite profound ways. Thus, Woman 22 was informed in her fifth month that she had a breech presentation and might need a caesarean section. She remained anxious unnecessarily until late in her pregnancy when she was informed that the baby had turned and she could deliver normally, which is not unusual with breech presentation. Another said:

"*I was shocked to learn that the scan showed I had a mass over my uterus, so my parents insisted on taking me to another doctor to see if it was true. The first doctor was mistaken [in reading the ultrasound].*" (Woman 5)

---

[*] *Bint is an Arabic word for the woman before marriage.*

[†] Determination of fetal sex cannot be done by ultrasound in the first two months of pregnancy. It has been done with about 70% accuracy at 11 weeks of pregnancy, 98% accuracy at 12 weeks and no error at 13 weeks of pregnancy in a 1999 study.15

Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

On the other hand, sometimes the style of communication of the doctor was (mis)judged as competence or its absence:

"*He was staring for a long time at the screen. You see he is very good. He keeps looking [she waves as if she is reading from a book], and he keeps explaining. He told me about the [amniotic fluid]. My previous doctor was different. She does the scan very quickly and tells you: 'Hey stand up… you have nothing' and that's all. I tell you, I felt the difference between those two doctors.*" (Woman 10)

Discussion

The perceived attractiveness of ultrasound for the women in this study was not surprising, as similar views have been reported in many previous studies.[8] However, we find the routine and excessive use of this technology in Syria worrying. First of all, we are concerned about the large number of scans so many women are being exposed to – as many as 20 scans each in women with normal pregnancies who had only minor complaints during pregnancy. Although no hazardous effects of ultrasound have been shown,[1] we believe the extensive use being made of this technology by private doctors in Damascus is primarily to attract antenatal women to their clinics. This works because women lack information about the reasons for and recommended frequency of ultrasound and cannot always judge the value of what they are being told. Moreover, the high number of scans might well also be a way of making money for the doctors concerned. Although the charge for an ultrasound scan is normally included in the payment for the visit as a whole, a high number of visits mainly or only for scans would make a great difference to the income of a private doctor.

Our larger study found that the main care women said they were getting during antenatal visits consisted of ultrasound scans and multi-vitamin prescriptions. Other essential services such as blood and urine tests and measurement of blood pressure were rarely done, if at all.[16] Yet, in a nationwide study for the Syrian Society for Obstetricians and Gynecologists, which used a self-administered questionnaire distributed to obstetricians, nearly 100% of the responding doctors (182 out of 862 all over the country) claimed that they carried out all components of antenatal care, including urine and blood tests, and of course ultrasound.[17] This difference is worrying and raises many other questions. In this regard, one of the limitations of this study is that it did not attempt to interview obstetricians, something we hope to do in future when we have found an innovative method of working with doctors as research subjects, to break through their lack of interest in women's experiences, which emerged from our qualitative work.[11]

What makes things worse is the inaccurate and anxiety-producing information that is sometimes being given to women based on their scans, which can have harmful psychological effects.[18–20] The belief that reading a scan does not require expertise is misplaced. Although post-graduate training in obstetrics and gynaecology in Syria is not good enough to ensure that the technology is utilised as well as it should be, very few obstetricians in Syria refer their patients to radiology clinics for ultrasound scans during pregnancy. Post-graduate training in ultrasound for obstetricians is not structured enough nor assessed. Residents do not follow a full six-month or one-year training under the supervision of a skilled instructor as is the case in other developed countries.[21,22]

The social use of ultrasound to find out the sex of the baby was important for almost all the women. They were keen to have this information, but they were happy about the result only if it corresponded to their preferences or the preferences of their husbands or in-laws. The fact that one woman felt she had to switch to another doctor to get this information was disturbing. We also suspect that those doctors who refused to reveal the sex of the baby

refused not for religious reasons, as they told the women, but to avoid an incorrect diagnosis, especially before 12 weeks of pregnancy. However, many professionals argue that determination of fetal sex should not be carried out on demand or as a matter of routine in any case, especially in the absence of skilled personnel.[19,20]

In Syria, women are not empowered to discuss issues related to their health with their doctors or to question a diagnosis openly, though several of the women in this study did seek a second opinion. Most never doubted what they were told, however, nor did they question whether having so many scans during a pregnancy was required, especially if the baby was found to be doing fine. In this sense, the need for reassurance that the baby was indeed doing fine and growing well was crucial to their acceptance of and willingness to have ultrasound scans.

The implications of the findings of this study for the practice of ultrasound in Syria and similar settings are extensive. First and foremost is that maternity care needs to be evaluated and better regulated. Women are having far too many antenatal visits. They may be “free” to go to different providers for different things, but it is unclear whether they or their babies are benefiting. Secondly, it is of great importance that women and their doctors are aware of the essential components of antenatal care and informed that extensive use of ultrasound scans is not necessary. The new World Health Organization antenatal model recommends four antenatal visits in the course of a normal pregnancy, and that the use of ultrasonography is justified only in certain conditions, specifically the early detection of multiple pregnancy and better gestational age assessment.[23]

Thirdly, we recommend that national guidelines for antenatal care be developed, including on ultrasound use. The Syrian Ministry of Health prepared general guidelines on maternity care in 2000,[24] but these are only available to doctors and midwives at public health centres. Yet most women are attending private clinics, according to the PAPFAM Survey.[12] New guidelines should be applicable to all health services, including the private sector, and their use should be monitored with vigilance. In addition, formal medical education in obstetric care, including on ultrasound, needs to be strengthened.

Finally, Syrian women need to be empowered to ask questions related to pregnancy and childbirth and the care they receive. As regards ultrasound, they need to know what they can expect to learn from a scan and when one is needed, and that ultrasound is not the only or most important component of antenatal care.

Résumé

Partout dans le monde, les échographies font partie intégrante des soins prénatals. Cet article décrit une étude qualitative menée en 2003 sur la perception de 30 Syriennes et leur expérience des échographies de routine pendant la grossesse. Cette recherche faisait partie d’une étude plus large des expériences de la grossesse et de l’accouchement auprès de 500 femmes de Damas et alentours qui avaient récemment accouché d’enfants en bonne santé. Les femmes avaient subi plusieurs échographies pendant leur grossesse et presque toutes les avaient acceptées sans difficulté. Les échographies les rassuraient sur la santé du bébé et l’évolution de leur grossesse et leur permettaient de connaître le sexe du fœtus. Les femmes avaient également bien réagi aux messages d’information prénatale transmis à l’aide des ultrasons. Néanmoins, nous jugeons inquiétant l’emploi excessif de cette technologie. Nous pensons que les médecins privés, qui suivent 80% des femmes enceintes, se servent des échographies pour attirer les femmes dans leur cabinet et augmenter leur revenu. Nous recommandons de mieux réglementer les soins maternels, d’informer les femmes et leurs médecins des éléments essentiels des soins prénatals, de préparer des directives nationales

Europe PMC Funders Author Manuscripts
Europe PMC Funders Author Manuscripts

sur les soins prénatals et de donner aux Syriennes les moyens de poser des questions sur la grossesse et l'accouchement, et sur les soins qu'elles reçoivent.

Resumen

La ecografía forma parte integral de la atención antenatal a nivel mundial. En este artículo se informa de un estudio cualitativo realizado en 2003 acerca de las percepciones y experiencias de 30 mujeres sirias con relación a la ecografía de rutina durante el embarazo. Fue parte de un estudio más amplio de las experiencias durante el embarazo y el parto de 500 mujeres provenientes de Damasco y sus suburbios, quienes recientemente habían dado a luz a recién nacidos saludables. Habían tenido múltiples ecografías durante el embarazo y, casi todo el tiempo, aceptaban su uso sin cuestionarlo, ya que éstas les demostraban que el bebé estaba saludable y el embarazo progresando bien, y les permitían conocer el sexo del bebé. También reaccionaron de manera positiva a los mensajes educativos de atención antenatal, que se transmitieron por medio de las ecografías. No obstante, el uso excesivo de esta tecnología es preocupante. Creemos que los médicos particulares, quienes atienden al 80% de las mujeres embarazadas, utilizan la ecografía principalmente para atraer a las mujeres a sus clínicas y aumentar sus ingresos. Recomendamos que se regulen mejor los cuidados de maternidad en Siria; que se conciencie a las mujeres y a sus médicos acerca de los componentes esenciales de la atención antenatal; que se elaboren normas nacionales para la atención antenatal; y que se empodere a las mujeres sirias para que hagan preguntas sobre el embarazo, el parto y la atención que reciben.

Acknowledgments

We are extremely grateful to the women who gave so much of their time for the interviews. This study was supported by the American University of Beirut (AUB) Award on Choices and Challenges in Changing Childbirth, and by the Regional Research Programme at the Faculty of Health Sciences at AUB, which is supported by a grant from the Wellcome Trust.

References

1. Enkin M, Keirse MJN, Neilson J, et al. A Guide to Effective Care in Pregnancy and Childbirth. 3rd ed. Oxford: Oxford University Press, 2000.
2. Neilson JP. Ultrasound for fetal assessment in early pregnancy (Cochrane Review). In: The Cochrane Library, Issue 4. Chichester: John Wiley & Sons Ltd, 2003.
3. Bricker L, Neilson JP. Routine ultrasound in late pregnancy (after 24 weeks gestation) (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software, 2003.
4. Villar J, Gulmezoglu AM, Khanna J, et al. Evidence-based reproductive health in developing countries. In: WHO Reproductive Health Library, No.2. WHO/RHR/HRP/RHL/2/99. Geneva: World Health Organization, 1999.
5. Clement S, Wilson J, Sikorski J. Women's experiences of antenatal ultrasound scans. In: Clement S. Psychological Perspectives on Pregnancy and Childbirth. Edinburgh: Churchill Livingstone, 1998. p.7–24.
6. Hyde B. An interview study of pregnant women's attitudes to ultrasound scanning. Social Science and Medicine. 1996; 22:587–92. [PubMed: 3518066]
7. Thorpe K, Harker L, et al. Women's views of ultrasonography: a comparison of women's experiences of antenatal ultrasound screening with cerebral ultrasound of their newborn infant. Social Science and Medicine. 1993; 36:311–15. [PubMed: 8426975]
8. Garcia J, Bricker L, Henderson J, et al. Women's views of pregnancy ultrasound: a systematic review. Birth. 2002; 29:225–50. [PubMed: 12431263]
9. Tautz S, Jahn A, et al. Between fear and relief: how rural pregnant women experience fetal ultrasound in a Botswana district hospital. Social Science and Medicine. 2000; 50:689–701. [PubMed: 10658849]

Europe PMC Funders Author Manuscripts
Europe PMC Funders Author Manuscripts

Europe PMC Funders Author Manuscripts

10. UNICEF. The State of the World's Children. New York: UNICEF, 2004.
11. Hafez R, Bashour H, et al. Childbirth and its discontent. (Forthcoming paper)
12. Syrian Central Bureau of Statistics. The Pan-Arab Project Family Survey (PAPFAM Survey). A Preliminary Report. Damascus, 2002.
13. Syrian Ministry of Health. The Statistical Report on the Reproductive Health Services Provided by the Ministry of Health. Damascus, MOH, 2003.
14. Bashour H, Abdulsalam A. Syrian women's preferences for birth attendant and birth place. Birth. 2005; 32:20–26. (In press). [PubMed: 15725201]
15. Efrat Z, Akinfenwa OO, Nicolaides KH. First-trimester determination of fetal gender by ultrasound. Ultrasound in Obstetrics and Gynecology. 1999; 13(5):305–07. [PubMed: 10380292]
16. Bashour H, Abdulsalam A, Faisal W, et al. The patterns and determinants of maternity care in Damascus. (Forthcoming paper)
17. Syrian Society of Obstetricians and Gynecologists. A study on the understanding of reproductive health by Syrian obstetricians. Draft report, 2004.
18. Leithner K, Maar A, Fischer-Kern M, et al. Affective state of women following a prenatal diagnosis: prediction of a negative psychological outcome. Ultrasound in Obstetrics and Gynecology. 2004; 23:240–46. [PubMed: 15027011]
19. Kamel HS, Ahmed HN, Eissa MA, et al. Psychological and obstetrical responses of mothers following antenatal fetal sex identification. Journal of Obstetric and Gynaecological Research. 1999; 25:43–50.
20. Nzeh DA. Ultrasound determination of fetal gender: accuracy and social implications. East African Medical Journal. 1996; 73:225–27. [PubMed: 8706603]
21. Royal College of Obstetricians and Gynaecologists. Ultrasound Imaging in the Management of Gynaecological Conditions. London: RCOG, 2002.
22. Lee W, Hodges AN, Williams S, et al. Fetal ultrasound training for obstetrics and gynecology residents. Obstetrics & Gynecology. 2004; 103:333–38. [PubMed: 14754704]
23. World Health Organization. The WHO Antenatal Care Randomized Trial: Manual of the Implementation of the New Model. WHO/RHR/01.30. Geneva WHO, 2002.
24. Syrian Ministry of Health. The Trainer's Guide to Reproductive Health. Damascus: MOH, 2000.