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Title: ROUTINE ULTRASOUND EXAMINATION DURING PREGNANCY- A WORLD OF POSSIBILITIES

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Abstract

Objective: To identify and describe the meaning of the routine ultrasound scan to pregnant women.

Design: A qualitative descriptive study using Grounded theory approach, with individual interviews to collect data.

Setting; The study was undertaken at three antenatal clinics in a Swedish county of approximately 400,000 inhabitants.

Participants: Voluntary samples of ten pregnant Swedish women, 26-38 years of age, were interviewed prior to their first routine ultrasound.

Findings: Making it Possible was the core category that explained and illustrated the meaning of the scan. The core category showed that the women considered the examination to be filled with possibilities to reach different goals during pregnancy. It also explained the categories Ultrasound as an event, Ultrasound as a situation, Ultrasound as a test and the Effects of ultrasound as well as how they related to each other. The findings are considered the beginning of a theory concerning the meaning of the first ultrasound to pregnant women.

Key conclusions and implications for practice: Pregnant women can see their first ultrasound as a tool that enables them to reach different goals during their pregnancy. Many of the goals concern meeting and connecting with the baby, suggesting that pregnant women consider the examination an important step towards parenthood. An ultrasound examination offered for medical reasons, having other meanings than the intended to pregnant women, is important knowledge. It can be useful when giving information about the scan, addressing the woman during the examination, and for understanding and handling possible reactions.

Keywords: Ultrasound, Meaning, Pregnancy, Grounded Theory.

Introduction

The ultrasound scan has become an almost universal part of antenatal care in developed countries (Garcia et al., 2002). Ultrasound examination during pregnancy was introduced in Sweden in 1973. It is now considered a kind of fetal diagnosis, offered as a routine procedure and consented to in 97 % of all pregnancies (The Swedish Research Council, 2001). The examination is usually carried out once, between the 16th and 20th week of the pregnancy. Approximately 80 % of the examinations are performed by specially trained midwives. The main purposes of the examination are the confirmation of gestational age and the detection of a multiple pregnancy (SBU, 1998).

The reasons pregnant women undertake the examination have been explored in several studies. One important reason is the need for reassurance (Santalahti et al., 1998; Stephens et al., 2000; Larsen et al., 2000; Gudex et al., 2006; Lalor & Devane, 2007). Other reasons are finding out whether the baby has malformations or whether a multiple pregnancy exists (Larsen et al., 2000; Gudex et al., 2006; Lalor & Devane, 2007). Earlier studies show that women were not always aware that the scan might detect malformations, or they expected the scan to show that they carried a healthy baby (Crang-Svalenius et al., 1996; Eurenus et al., 1997). Later studies show that women have more realistic expectations of the purpose of the scan and what it might reveal (Larsen et al., 2000; Gudex et al., 2006; Lalor & Devane, 2007). Providing too detailed lists of fetal anomaly detection would cause unnecessary anxiety and worry, and is therefore not desired for by pregnant women (Lalor & Begley, 2006).

The scan is important to pregnant women as it results in feelings of satisfaction, comfort and joy when findings are normal (Crang-Svalenius et al., 1996; Eurenus et al., 1997; Stephens et al., 2000). Dykes and Stjernqvist (2001) have shown the impact of ultrasound on women's

thoughts about their unborn child and how it increased their awareness of them carrying a child. Ekelin et al. (2004) describe the importance of the examination for parents-to-be as confirmation of a new life.

Apart from being a commonly accepted technique, routine ultrasound during pregnancy is discussed in terms of the medicalisation of the pregnancy (Zechmeister, 2001) as well as resulting in ethical dilemmas for parents- to- be (Getz & Kirkengen, 2003). Despite this, the majority of women choose to have an ultrasound scan during pregnancy (Garcia, 2002). As human beings create the meaning of their experiences and knowledge (Bruner, 1990), the question of why women find the examination so important was raised. The aim of this study was to identify and describe the meaning of the routine ultrasound scan to pregnant women.

Methods

Because it aims to predict and give a perspective on behaviour (Glaser & Strauss, 1967) a grounded theory (GT) approach, with individual interviews to collect data, was chosen for this study.

Settings

The study was undertaken at three antenatal clinics in a Swedish county of approximately 400,000 inhabitants, between February and April 2002. At one of the clinics the routine ultrasound screening was done at 12-13 weeks gestation and at 18 weeks gestation at the remaining two clinics. Permission for the study was obtained from the head of each clinic. Ahead of recruiting, all midwives at each clinic were given oral and written information about the study.

Participants

Informants were recruited through the midwives at each antenatal clinic by being given written information about the study at their first visit. The women needed be able to speak and understand Swedish and not have had any previous ultrasound examinations during the current pregnancy. If they accepted the first author (EM) to telephone them and request their participation, the women left a signed consent form with the recruiting midwife. As soon as a recruiting midwife had an eligible participant, the first author was handed the consent and contacted the woman by telephone. Fifteen women consented to be contacted by the author, and when contacted, 14 of them agreed to participate. One woman declined later due to lack of time, leaving 13 women. When 10 pregnant women had been interviewed prior to their routine ultrasound screening we found that the ninth and tenth interview did not provide any new data, indicating that theoretical saturation had been achieved. Three women were therefore informed that they would not be interviewed. Hence, a total of 10 women participated. The informants chose where to be interviewed: nine chose to be interviewed in a private room at the clinic and one at her home. The women interviewed were between 26 and 38 years of age. Four of the women were expecting their first child, and the others had given birth to 1 to 3 children. Five women had a university education. The researcher had never met the participants ahead of the interview.

Data collection

All of the interviews were conducted by the first author (EM) in accordance with the technique of qualitative interviewing (Kvale, 1996). The women, 12-19 weeks pregnant, were interviewed individually one hour to 28 days prior to the examination. At the beginning of the interview the woman was asked to speak freely about her feelings and thoughts about the upcoming ultrasound examination. If necessary, the interviewer asked the woman to expand

or explain a topic. As interviews and coding were done in parallel, new topics emerged which generated new attendant questions for each woman. The interviews lasted between 30 and 60 minutes, and were audio taped and transcribed verbatim by the first author.

Ethical considerations

The local Research Ethics Committee approved the study. Participants were informed about the study on recruitment and shortly before the interview. They were informed that they could terminate the interview if they wished to do so. Confidentiality was obtained by using pseudonyms for the participants and by not presenting specific characteristics of the women.

Data analysis

The first interview was analysed with the assistance of a fellow researcher and the remainder by the first author. During the analysis, all findings were discussed and agreed upon with the fellow researcher. The analysis began after the first interview with open coding, when incidents from the transcribed text were constantly and comparatively coded and conceptualized. Categories emerged from concepts that seemed to be related. Codes and categories were then followed up in the next interview. All codes and categories from the different interviews were constantly compared with each other, which led to existing categories being confirmed and new categories being found. In the next level of analysis, selective coding, categories were compared in relation to each other and connections were found (Glaser, 1978). This process resulted in four categories: an Event, a Situation, a Test and the Effects. During the analysis, notes and ideas, memos, were written down. Reading memos along with the selective coding resulted in a deeper understanding of the connection between all categories and the core category, Making it Possible, was found. All data relate to the core category which, in turn, offers explanations for the relationship between the categories (Glaser & Strauss 1967; Glaser, 1978). As the original paper was written in

Swedish, translating the findings to English was meticulously done. All concepts and categories were checked by all three authors for the best English translation to assure accuracy and integrity of the quotations.

Findings

The analysis identified the core category: Making it Possible. The women considered the examination to be filled with possibilities for them to reach different goals. The examining situation in itself provided goals that the women could reach when being examined, such as being active and participating. The examination in itself presented other opportunities, such as being a break during pregnancy. Further, the result of the scan implied, for example, that the pregnancy was normal. All these possibilities interacted with each other and influenced the effects of the examination. Ultrasound as a situation and an event interacted as two separate dimensions of time. A situation represents present possibilities, and an event a possibility as a part of the entire pregnancy. But a situation interacted with a test as well, showing further possibilities and dimensions of the upcoming examination. It was hoped that an event, a situation and a test would result in several possible effects, thus the core category Making it Possible. One clearly noticed effect is that the baby is visualised and the pregnancy confirmed. The connections between the categories are shown in Figure 1. As the women used the word “baby” this is the expression used. Quotations with fictional names are used to illustrate the findings.

Making it possible

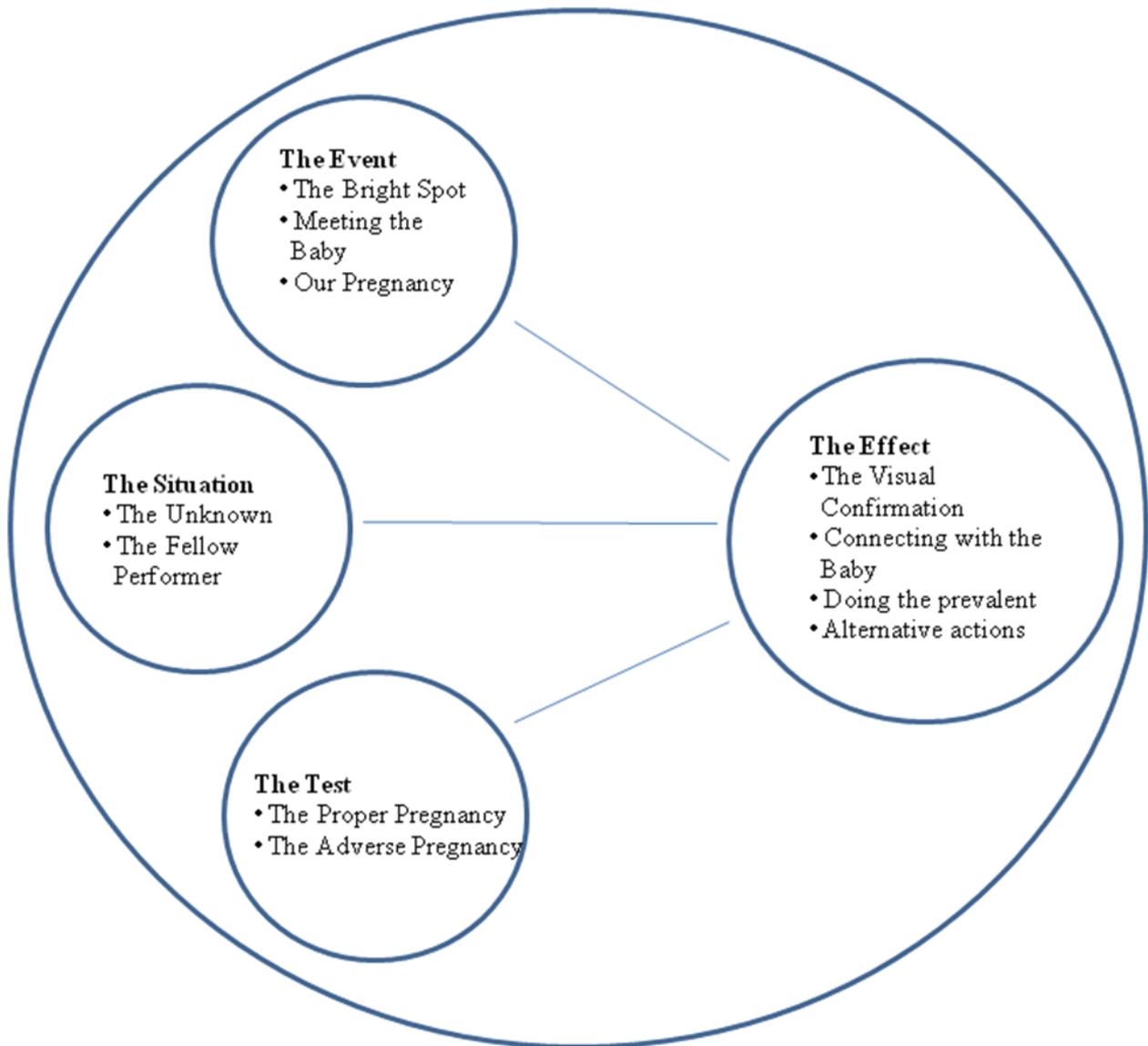


Figure 1 . The meaning of the routine ultrasound examination to pregnant women. Core category, categories and substantive codes.

Ultrasound as an event

The examination was considered a positive event during the pregnancy, a bright spot to look forward to and long for. It was an important event and the feelings were intensified as the examination drew closer. The feeling of joy was also directed to the fact that something concrete was finally taking place, which made the pregnancy seem a little shorter.

Somewhere in the middle of the pregnancy that you really get, it sort of makes it shorter...because if you didn't have this...I think waiting for nine months without any highlights would seem very lengthy... (Irene)

The examination represented a possibility to meet the baby as well. It was hoped that the meeting would provide more knowledge about the physiognomy of the baby and getting to know the baby more. To the women the baby was already a person and by seeing what it was doing, they hoped to get an idea of what kind of personality the baby could have. Meeting the baby would be possible in terms of "seeing", "getting a hold of" and "having a foretaste of".

...it's kind of getting to see something about how...he or she looks like, or sort of getting a hold of the character... (Gun)

This concept also held a fear that the meeting with the baby would take place in just one direction, as the baby would not have an opportunity to respond.

..in a way it's almost like I'm intruding....because I am doing this without permission ..it's just to peep in...without permission..without this small being knowing that we are looking..it's just in one direction..(Gun)

The pregnancy and the baby were of mutual concern to the couple- our baby- but because the main focus was on the woman's body, there was a fear that her partner would feel left out.

The ultrasound examination therefore represented an opportunity to enhance the involvement of the partner as he would be able to see with his own eyes that a baby actually existed. This represented a possibility that the pregnancy would become a mutual project.

...I think it's different for me and my husband...well I think he will be more a part of this in other ways when he watches. It's hard to explain the feeling inside to somebody who doesn't have it... (Emma).

Ultrasound as a situation

The upcoming ultrasound examination meant a new and unknown situation, rendering mixed feelings. It could be an emotional experience, which had to be taken care of by the staff.

...I have thought about this, because you really don't know how you will react when you see...when you see this baby...you might start to cry...or get really upset...or...I don't know...or you're just normal...I hope it's not too much like a hospital but more a little...that you get a feeling of cosiness. (Anna)

Thorough information about what was going to happen, e.g. if the examination was to be done vaginally or if might cause any physical discomfort, helped relieve some anxiety. Knowing how well prepared the staff was to handle fetal deviations, if they were found, was also of great help.

About everything...how long it takes...what will happen if something is

wrong with the baby..how often is something wrong with the baby...I

know it's not very often. (Frida)

Knowledge of the measuring procedures of the foetus was not important. It was of greater importance that the examiner explained and helped the woman to understand what she was seeing on the screen.

The main thing is that...I get an interpretation from her or him

who is examining me that is as close to reality as possible ... (Irene)

Being able to watch the same screen as the examiner, or a parallel screen, was an opportunity to be active and participate in the examination by asking questions and receiving information. This meant a possibility for the woman to become a fellow performer. It was also important that the examiner took some time and explained in a way that was easy to understand, and made it easy to feel involved. As a fellow performer the woman might react in different ways, and it was hoped that the examiner would deal with such reactions in a professional way. A fellow performer should have the opportunity to remain silent during the examination as well as getting to know the gender of the baby, if desired.

Maybe that the sonographing midwife would ask a little about... what expectations

we had and...if we had seen ultrasound imaging before...how we experienced

that and...what we hoped for and...pause the imaging and...well that she would

ask if we were worried about something...a little more time. (Gun)

Ultrasound as a test

The examination entailed an assessment of the pregnancy, resulting in one of two different possibilities: the proper pregnancy or the adverse pregnancy. A proper pregnancy was the hoped-for outcome and varied between the levels of something actually existing in the uterus to it being a normal baby. Being able to see the limbs and movements of the baby would be an indirect confirmation that the baby was healthy.

That everything is healthy...well that it has arms and legs.... and such. (Ditte)

An adverse pregnancy was a worrisome possibility, varying between levels of “there isn’t anything”, “it’s not right” to “it’s dead”. The examination could result in an unpleasant and undesired answer, but the main thing was not for it to be some kind of foetal diagnosis.

But I think...it’s because they are supposed to check that everything is OK...

and they probably do find something wrong too but that’s not something I

think about, like now they’re going to check that everything is OK. (Jenny)

Effects of the ultrasound examination

The ultrasound would visually confirm the existing pregnancy and help remove feelings of unreality. Watching the pregnancy on the screen along with feeling pregnant would make it possible to really believe in the pregnancy. This would help the women to grasp the pregnancy and to release their feelings for the baby.

What you have not seen you do not really believe in and...now I only have

a feeling and I have not seen it (Irene)

The examination would result in connecting with, and feeling closer to the baby. Some feelings already existed, but it was hoped these would be strengthened by being able to see the baby on the screen.

Closer I think...closer...because then you can see what kind of child you have a relation to...even if you don't have it in your hands and..you can not feel and hear and...such things...you still know just about who you have inside. (Frida)

The ultrasound examination was viewed as an optional but common procedure during pregnancy. Having the examination would be an opportunity to do what almost every pregnant woman does. Some of the women were a little uncertain about whether the examination was optional or not. They had understood that their midwife had told them to have it.

Yes I'm sure it is (optional) but I think everybody else does it...well maybe not...but anyways I wouldn't miss it. (Emma)

Regardless of whether the result was considered desirable or the adverse, the examination would enable alternative actions. It would provide the longed-for possibility to announce the pregnancy to friends and family if the examination revealed an existing and normal pregnancy. Being able to show a picture of the baby would be the first opportunity to show the baby to friends and family. The picture would also deepen the connection with the baby because both parents would be able to study its features and speculate about which of them the baby resembled.

(It is) almost this little proud thing to come and show this is sort of...this is our little fetus, kind of...our little baby (Jenny).

The ultrasound scan would provide a more accurate length of the pregnancy than just

calculations based on the last menstrual period. This would provide an opportunity to plan the pregnancy better.

..one can decide more...start to make some plans...well around
that time you will have a baby. (Berit)

Even an adverse result would provide opportunities to act in different ways. One would be the possibility of terminating the pregnancy if the baby showed signs of being sick or malformed. Although this was considered a positive, but very difficult decision, it still represented a choice. The choices could either be to have an abortion, to take things as they came, or to prepare to take care of a handicapped baby.

If you are not expecting a healthy baby...why keep it? At least that's how I feel. (Hanna)

It depends on what it is or...I don't think it's like...oh it (the baby) is really sick
and now I have to get rid of it, now I don't want to keep it ...I'm not that sure...
but if it were very sick and you knew what was wrong...then you would
take that step...then you'd have to think ahead maybe.... if there's something wrong
you'll be able to prepare yourself for what will come. (Ditte)

In summary, the meaning of the ultrasound examination is that it represented many possibilities to pregnant women, during the scan and in the future. All categories were closely linked together, representing different possibilities which, in turn, could render new possibilities. The core category, Making it Possible explained the content of each category, the interactions between the categories, and the results of the interactions.

Discussion

This study showed that the women viewed the ultrasound scan as being filled with possibilities, a tool that would help them to reach different goals during their pregnancy; Making it Possible. One such possibility was the scan as an extra control of the pregnancy as well as a psychological milestone, a bright spot. Internationally women rate ultrasound during pregnancy as one of the most important aspects of their antenatal care (Garcia et al., 2002), but ultrasound treated as a bright spot has to be taken into consideration. Since 1996 the recommended number of visits to the midwife for women expecting their first child, has been reduced from 13-14 to 8-9 (National Board of Health and Welfare, 1997). According to Berglund (1999) this has resulted in women requiring extra visits to the midwife, which suggests that the need for regular contact with maternity care during pregnancy is not always sufficiently met in Sweden. Feelings of pregnancy as a long uneventful experience might be shared by women in other countries as well, which is worth noticing for midwives.

Viewing the ultrasound screen meant a highly anticipated meeting with the baby. It is well known that women want to see their baby by ultrasound (Eurenius et al., 1997; Stephens et al., 2000; Gudex et al., 2006) but the meaning of this was clarified in the present study. Here the ultrasound scan represented an opportunity to get to know the baby better and to get an idea of what kind of personality the baby might have. Although an ultrasound examination can result in women thinking more of their baby and experiencing stronger feelings (Black, 1992; Dykes & Stjernqvist, 2001), it may result in feelings of guilt as well, as shown by the present study. One woman described herself during the upcoming meeting as an intruder, as the baby would not be able to respond. Being aware of such mixed feelings can help the examiner to adjust ways of addressing the woman during the examination.

The ultrasound examination also provided an opportunity to make the pregnancy a mutual project for the parents-to-be. The women expected their partners to participate during the scan and to share the experience with them. Watching the ultrasound screen enhances the feeling of involvement for the father (Draper, 2002; Ekelin et al., 2004; Locock, 2006). We suggest that this feeling of being involved can be seen as a kind of paternal-fetal attachment as described by Ferketich & Mercer (1995). They found that fetal attachment is a very good predictor for early postnatal attachment between father and child. The Swedish Health Board also promotes parenthood as a mutual project by addressing antenatal classes to both mothers- and fathers-to-be, which is appropriate considering the findings above (National Board of Health and Welfare, 1997).

The approaching situation presented other possibilities. One was to be examined in a caring way. Earlier studies e.g. Thorpe et al. (1993), found that women worried about the ultrasound technique harming the baby, but later studies do not discuss this (Garcia et al., 2002). One explanation can be that women now consider the scan as technically safe, due to the improved quality of the equipment, whereas the care offered by the examiner is more unpredictable. Being active and able to ask questions seemed important as well, as the women felt that they would be more in control of the situation. Involvement as a means of being in control, and thereby reducing tension, is valuable knowledge for examiners. This is in accordance with Halldursdottir (1996), who describes the importance of interaction between midwife and patient as good care being symbolised with “The Bridge” metaphor. We perceive the ultrasound examination as an act of care.

Ultrasound seen as a test resulting in either a proper or an adverse pregnancy raises questions about who being tested and in whose interest the test is. One of the most common

expectations of an ultrasound scan is to find out whether the baby is healthy (Eurenius et al., 1997; Stephens et al., 2000; Larsen et al., 2001; Ekelin et al., 2004; Lalor & Begley, 2006; Gudex et al., 2006), suggesting that women perceive it to be the baby that is being tested. The women in this study acknowledged the scan as a test of their baby, which suggests that the test offered possibilities in itself.

The effects of the scan were the possible outcomes of the examination, with the visual confirmation of the pregnancy as an important opportunity. It was hoped that the ultrasound would confirm the existence of a live baby, which the women found hard to believe until then. Visual confirmation by ultrasound can be seen as a form of reassurance (Garcia et al., 2002) and as having a calming effect (Santalahti et al., 1998; Stephens et al., 2000). Our study suggests that the calming effect is a result of meeting and testing the baby. According to Zlotogorsky et al. (1997) the calming effect is stronger in the beginning of the pregnancy than at the end, again demonstrating the impact of the first ultrasound.

The women found the examination useful as it provided options for how to act regardless of the findings. This provides a deeper understanding of the commonly presented wishes of women to find out whether the baby has any malformations (Larsen et al., 2000; Gudex et al., 2006; Lalor & Devane, 2007), suggesting that pregnant women possess a drive to act beyond the result. Connecting with the baby can be seen as a possible start of the mother- and- child bonding process, enabling women to prepare themselves for motherhood. As described by Boukydis et al. (2006), getting to know more about the baby by ultrasound scan strengthens the bond between the woman and her unborn child. As the main purpose of the routine ultrasound scan in Sweden is medical, however, the bonding effects can be seen as positive side effects. The duration of these effects is unclear, as pointed out by Lumley (1990).

The examination was considered an important part of a normal pregnancy and several of the women reported that they would be very disappointed if they were deprived of it. According to Bredmar (1999) Swedish midwives have a tendency to present the ultrasound examination as a routine procedure, instead of an offer. As a result women do not reflect on whether to participate or not. Our study indicates that Swedish women are aware that the examination is optional, but choose to participate because it is an opportunity to do what everybody else does. This finding is supported by Whynes (2002), who described ultrasound examination in Europe as a routine procedure aimed at improving the supervision of the pregnancy.

Therefore women accept it as routine. It is possible that doctors and midwives, when stressing the advantages of ultrasound, unintentionally mediate the belief that it is irresponsible to decline the examination.

The scan offered possibilities to act in relation to what might be found. Knowing the approximate day of birth of the baby would enable the women to plan maternal leave and future child care. Even if the women were aware that the calculated date of birth was approximate, some of them had unrealistic expectations that the baby was actually going to be born that day. This shows the necessity of ensuring that the information given by midwives and physicians is clear and correct. The ultrasound as a possibility to announce the pregnancy was a noteworthy finding. Women had fears that they would have to tell people that the baby had defects or that they might have to interrupt the pregnancy. They described such fears in terms of failure. Similar fears are described by Tymstra (1991), in terms of ultrasound and the rise of the tentative pregnancy.

Swedish midwives are expected to give information about fetal diagnosis while caring for pregnant women. It is being discussed in Sweden whether parents-to-be are aware that the

ultrasound examination is considered a form of fetal diagnosis, as fetal malformations can be diagnosed. Written information about the examination does not always clarify this, making it an important ethical issue (SBU 1998, The Swedish Research Council 2001). Too much and too detailed information about detection rates of specific anomalies can be counter-productive, because this appears to raise the anxiety of pregnant women (Lalor & Begley, 2006). This demonstrates some of the ethical difficulties midwives may encounter while caring for pregnant women.

The findings in this study are intriguing. They indicate that the meaning of the ultrasound scan of pregnant women is complex; concerning the procedure as well as the effects of the examination. Aspects such as medicalisation of pregnancy through ultrasound scans and difficult ethical dilemmas for parents- to-be were not found in this study. On the contrary the women considered the scan and its effects as possibilities, which are findings that raise questions about what really is going on in the examination room. The examination is being done for purely medical reasons whereas the reasons for pregnant women to have it appear to be completely different. According to Bruner (1990) we are part of an official world with official meanings and we create our personal meaning in interaction with the official meaning. As professionals we have to ask ourselves why the meaning of the ultrasound scan to pregnant women differs so much from the official.

The ability of linking empiric data to a theoretic level, theoretical sensitivity, is a prerequisite in a qualitative study. Theoretical sensitivity includes different aspects of knowledge of the area of interest, which reduces the risk of missing important information (Glaser (1978). Glaser also stresses the importance of starting the study without being prejudiced. As for reflexivity: the first author is a midwife and has worked with ultrasound for many years, which could have influenced the analysis both positively and negatively according to the

above. Being familiar with the context being studied facilitated planning and interviewing, but the interviewer being a midwife with a professional perspective on the examination could unconsciously have influenced the analysis and thereby the findings.

One limitation of this study could be the chosen strategy of recruiting informants among all women coming for their first visit to the midwife, which is not fully in accordance with grounded theory (Glaser & Strauss 1967, Glaser 1978). This was done for practical reasons. The constant comparative analysis of data resulted in new perspectives and areas of interest that were tested in the subsequent interviews. The analysis was discussed continuously with a fellow researcher to establish inter-subjectivity, a kind of consensus.

Transferability might be limited due to the strategy chosen for recruiting informants, which may have resulted in a narrower picture than intended. The ninth and tenth interview did not provide any new data, indicating that women with similar personalities joined the study, which might have influenced the findings. Only Swedish-speaking women were interviewed and this might also be a limitation. However, it is hoped that the varying time- span (1 to 28 days) between the interview and the examination has led to a greater breadth of data.

The validity of the theory was judged by the criteria fit, work, relevance and modifiability (Glaser & Strauss 1967; Glaser, 1978). The theory, with its core category, Making it possible, and categories, fits the area of interest – ultrasound scan during pregnancy and the data. The theory also works as it offers an explanation of the meaning of the scan to pregnant women. The theory also explains how the categories interact. Relevancy for those involved, especially midwives, is considered high. Modifiability has yet to be tested.

Conclusions

The routine ultrasound examination is done for medical reasons, but this study shows that pregnant women find it useful in other ways than those intended. The core category Making it Possible showed that pregnant women hope to achieve different goals during and after the examination. Many of the goals concerns meeting and connecting with the baby, suggesting that pregnant women consider the examination as an important step towards parenthood.

Implications for practice and research

This study might help the examining midwife or physician to address the woman during the ultrasound examination, and to understand and handle reactions that may occur during and after the scan. Moreover, midwives could use the influence of the ultrasound scan to promote a healthy life style during pregnancy. The core category Making it Possible can be used to support the couple's transition to parenthood. Future research can investigate how the impact of the ultrasound scan affects prenatal habits during the remainder of the pregnancy. Several clinics in Sweden are today, 2008, offering two ultrasound examinations during pregnancy. The first at 12-14 weeks of gestation ("NUPP-test") aiming to screen for Down's syndrome by measuring Fetal Nuchal Translucency, and a second routine scan at 18-19 weeks of gestation (SBU, 2006). The new routines raise difficult ethical questions and are much discussed in Sweden. Future research can investigate the impact of the new routines on the meaning of the ultrasound examination to pregnant women.

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