



Norwegian obstetricians' experiences of the use of ultrasound in pregnancy management. A qualitative study

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ABSTRACT

Objective: To explore obstetricians' experiences and views of the use of obstetric ultrasound in clinical management of pregnancy.

Methods: A qualitative interview study was undertaken in 2015 with obstetricians (N = 20) in Norway as part of the CROSS Country Ultrasound Study (CROCUS).

Results: Three categories developed during analyses. 'Differing opinions about ultrasound and prenatal diagnosis policies' revealed divergent views in relation to Norwegian policies for ultrasound screening and prenatal diagnosis. Down syndrome screening was portrayed as a delicate and frequently debated issue, with increasing ethical challenges due to developments in prenatal diagnosis. 'Ultrasound's influence on the view of the fetus' illuminated how ultrasound influenced obstetricians' views of the fetus as a 'patient' and a 'person'. They also saw ultrasound as strongly influencing expectant parents' views of the fetus, and described how ultrasound was sometimes used as a means of comforting women when complications occurred. 'The complexity of information and counselling' revealed how obstetricians balanced the medical and social aspects of the ultrasound examination, and the difficulties of 'delivering bad news' and counselling in situations of uncertain findings.

Conclusion: This study highlights obstetricians' experiences and views of ultrasound and prenatal diagnosis in Norwegian maternity care and the challenges associated with the provision of these services, including counselling dilemmas and perceived differences in expectations between caregivers and expectant parents. There was notable diversity among these obstetricians in relation to their support of, and adherence to Norwegian regulations about the use of ultrasound, which indicates that the care pregnant women receive may vary accordingly.

Introduction

Obstetric ultrasound is considered routine practice in most industrialised countries [1]. The clinical applications include confirmation of pregnancy and determination of gestational age, localisation of the placenta, diagnosis of fetal abnormalities, investigation of the number of fetuses, estimation of amniotic fluid volume, assessment of fetal growth, evaluation of fetal position and the investigation of clinical complications such as vaginal bleeding [2,3]. Furthermore, Doppler ultrasound has an important role in the evaluation of fetal and placental

circulation [4].

Ultrasound was introduced for routine use in developed parts of the world in the 1970–80s [5]. Nuchal translucency screening for Down syndrome came into practice in the early 1990s, and was later also combined with biochemical parameters, allowing for estimation of fetal risk for Trisomy 21 (Down syndrome), Trisomy 18 and Trisomy 13 [6], i.e. the Combined Ultrasound and Biochemical screening test (CUB). The developments in ultrasound technique and the introduction of three-dimensional images have led to an increasing use of ultrasound also for non-medical purposes. This includes 'entertainment

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ultrasounds' and providing expectant parents with souvenir images of the fetus, or determining the sex without medical indication [7,8]. Routine ultrasound examinations have been described globally as very appealing to pregnant women and their partners, and most women accept the offer when available, even though women are often not fully aware of the full purpose of the examination, and its limitations [9].

Previous reports from the CROSS-Country Ultrasound Study (CROCUS) have described ultrasound as an essential and valuable tool by obstetricians in low-, middle, and high-income countries [10–14]. However, its use has at times given rise to dilemmas in care, particularly when ultrasound findings are of uncertain significance [10,11]. Facilitating informed decision-making in situations of uncertainty has been described as “challenging” by obstetricians [15], and counselling has been described as a “balancing act” [11] because of the worry and anxiety expectant parents commonly experience when made aware that deviations have been found [9].

In Norway pregnant women are offered one routine ultrasound examination between the 17th and 19th week of pregnancy [16]. The primary aim of this examination is to determine gestational age. At this routine scan, the number of fetuses, placental position and fetal anatomy are also examined [16]. According to the Norwegian Directorate of Health, prenatal *diagnostic* ultrasound shall only be performed when there is an indication for prenatal diagnosis, and the offer should be made early in pregnancy [17].

Prenatal diagnosis is defined in the Biotechnology Act as examinations of fetal cells, the fetus or the pregnant woman with the purpose of obtaining information about fetal genetic traits or to detect or rule out disease or developmental anomalies [18]. Prenatal diagnosis includes the CUB-test where ultrasound forms part of the examination, or invasive procedures such as chorionic villus sampling or amniocentesis, examinations usually performed following a CUB-test indicating an increased risk for chromosomal abnormality. The indications for prenatal diagnosis are summarised in Box 1 [17,19].

Only five centres in Norway are approved to perform ultrasound as part of prenatal diagnosis [19], and the examination can only be performed following genetic counselling [17]. Termination of pregnancy in Norway is allowed up to 12 weeks of gestation, and after that, with permission from the Abortion Board up to 21 weeks + 6 days of gestation [20], which means that termination may be an available option following an adverse diagnosis at the routine ultrasound examination depending on the severity of the diagnosis. While virtually all pregnant women in Norway undergo the second trimester routine ultrasound examination, only 12% of pregnant women undergo CUB screening [21], and pregnant women cannot seek to undergo prenatal diagnosis outside of the public healthcare system. Routine ultrasound examinations and ultrasound as part of prenatal diagnosis are generally performed by midwives trained in ultrasound, while responsibility for follow-up of abnormal findings and management rests with the physician. The nature of work in obstetrics means that obstetricians frequently encounter difficult situations and complex decision-making. To date there is very little qualitative research undertaken where obstetricians' views and experiences of their challenging work have been

in focus, particularly in relation to the use of ultrasound, and no previous study has addressed obstetricians' experiences of ultrasound during pregnancy in the Norwegian maternity care context. The purpose of this study was to explore obstetricians' experiences and views of the use of obstetric ultrasound in clinical management of pregnancy.

Methods

Study design

A qualitative study design was employed. Individual face-to-face interviews were undertaken with obstetricians working in maternity care (N = 20), in order to explore their experiences and views in relation to the study aim. The study was part of the CROSS Country Ultrasound Study (CROCUS), which is an international research project with a focus on obstetricians' and midwives' experiences and views of the use of ultrasound in pregnancy management in low-, middle- and high-income countries. The countries participating in CROCUS are Australia, Norway, Sweden, Rwanda, Tanzania and Vietnam.

Recruitment and participant characteristics

Participants were recruited from five hospitals located in the central and southern parts of Norway. The hospitals were purposively selected to represent different characteristics in relation to level of care, annual number of births, and geographic location. Two were university hospitals and among the five Norwegian hospitals approved to perform ultrasound examinations as part of prenatal diagnosis. The remaining three were local hospitals of various sizes. The number of births at the hospitals ranged between 500 and 5100 annually. After ethical clearance, contacts were made via phone with each head of obstetrics and Gynecology. After consenting to the study to be undertaken, they also agreed to assist with recruitment of obstetricians. Participant information and consent forms were sent to the hospitals, and they were returned by mail or collected on site. Fifteen of the recruited obstetricians were female and five were male. Their ages ranged between 34 and 62 years (mean 47 years), and their work experience in obstetrics ranged between 6 months and 33 years (mean 15 years). Eighteen had specialist qualifications in obstetrics and gynecology and two were residents in obstetrics and gynecology. About one third of the obstetricians had work experience from other countries within and outside Europe. All participants had obstetric ultrasound training. More detailed information about the participants is presented in Table 1.

Data collection procedures

The interviews were conducted by IM (n = 17) and AÅ (n = 3) in one week in November/December 2015. All participants were provided with written and verbal information about the study, and written consent was obtained prior to the start of each interview. A set of key domains, used across all countries participating in CROCUS, was discussed during interviews. These included ultrasound's role in

Box 1

Indications for prenatal diagnosis according to the Directorate of Health, Norway.

- Pregnant women who are 38 years or older at the expected time of delivery
- Pregnant women in cases where the woman herself or her partner:
 - has previously had a child or a fetus with a serious disease or a developmental disorder (e.g. chromosome aberration)
 - is at an increased risk of serious illness in the fetus and this condition can be ascertained (e.g. certain hereditary diseases)
 - uses medications that can harm the fetus (e.g. antiepileptic medication)
- Pregnant women in whom suspicion of a developmental disorder has been raised by ultrasound examination
- In certain cases, pregnant women who are in a difficult life situation and who are convinced that they will be unable to cope with the extra strain involved in having a sick or disabled child

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