



# The pregnancy experience: a mixed methods analysis of women's understanding of the antenatal journey

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## Abstract

**Background** Positive contact with antenatal care and its providers improves positive outcomes for women and their babies. This involves the accrual and use of knowledge accumulated through education, experiential learning and other fora and is reliant on a positive experience.

**Aims** Women's knowledge of antenatal and postnatal care was examined, in addition to the positive and negative feelings and experiences they associate with it.

**Methods** Employing a mixed methodology, a self-administered questionnaire was distributed to women attending antenatal clinics. It consisted of open and closed questions examining women's experiences of antenatal care and knowledge of the intrapartum and postnatal journey. Following this, individual semi-structured interviews were conducted with eight postnatal women gaining further in-depth insight into their peripartum experiences.

**Results** Respondents to the questionnaire had varied opinions and beliefs about the purpose of antenatal care and prenatal screening policies, with the majority of their knowledge obtained from non-medical sources. The knowledge of labour and its complications was significantly better in multiparous women. However, in some postnatal scenarios, both cohorts lacked knowledge. In the qualitative study, women described positive feelings with their experience of antenatal care, with women expressing variations in the amount of knowledge they wanted to receive.

**Conclusions** This research demonstrates the varied experiences of women attending our services, highlighting both the positive and negative aspects of care. Topics of poor knowledge are highlighted, particularly in primiparous women and regarding the postnatal period. Using this information, women can be provided with an optimised, personalised experience in our maternity services.

**Keywords** Healthcare quality · Patient experience · Satisfaction

## Background

Historically, the art of medicine and subsequently healthcare delivery have been focussed on the treatment of illness and injuries, the enhancement of life and a reduction in pain and suffering [1, 2]. However, as advances have been made in these areas, it has become clear that the patient experience is

a key factor in the art of medicine and in optimising outcomes [3]. A positive patient experience is enhanced by several factors, such as engagement [4], healthcare practitioner communication [5] and optimal surroundings [6]. In some healthcare settings, a positive experience is a key performance indicator and is thus associated with a more profitable healthcare setting, such as in the USA with the 2010 US Accountable Care Act [7]. This introduced a Hospital Value-Based Purchasing Total Performance score, which included variables including the patient experience of care. Studies examining this have demonstrated a positive correlation between patient experience, outcome and profitability [8, 9].

A core part of the patient experience is engagement and participation in the decision-making process [10] and giving informed consent to medical care [11]. In the speciality of obstetrics, antenatal care is a time-limited period in a woman's

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life where they engage with healthcare providers [12] and undergo care on a journey that is both unfamiliar and, sometimes, anxiety-inducing. Studies have shown that the antenatal journey is a critical life event in a woman's life, affecting both the woman individually and the family unit [13].

In general, levels of understanding vary from poorly understood to well informed and are dependent on the number and types of sources of information, levels of formal and informal education and the processes of passive and active learning [14]. It is also dependent on the model of care a woman might pursue during the course of her pregnancy, with midwifery-led care demonstrated to have higher patient satisfaction than other forms of care [15].

In the Irish context, a large proportion of women attend combined antenatal care, sharing care between their General Practitioner and hospital-based services [13]. Other women may attend consultant-led care, midwifery-led care, DOMINO (domiciliary in and out) or community midwife services. Throughout this period, women attend a combination of medical and midwifery personnel, but can also visit other healthcare professionals, such as their community or public health nurse and physiotherapist. The 2016 National Maternity Strategy promotes women-, child- and family-centred care. It is recommended that following an initial risk assessment, women are categorised as normal, medium or high risk, with those classified as “normal risk” (conventionally called low risk) having a supported care pathway. This will be midwifery-led care in a multidisciplinary framework. Medium- and high-risk women should have assisted and specialised care based on their care needs, which will have a named obstetrician leading a care team of obstetricians and midwives.

As doctors and midwives working in the maternity services, it must be ensured that women have accurate information, which is well understood, and which will allow them to have adequate expectations of anticipated outcomes [16]. Despite education, it is also important to note that any healthcare experience is affected by their and others' previous experiences [17]. Given women in maternity services tend to attend repeatedly over a short period of time, the experiential impact can have both positive and negative effects.

Research in the area of women's experience of antenatal care is increasing corresponding with an increased interest in experience and satisfaction through all domains of medicine over the past 20 years [18]. Antenatal research more often focusses on women deemed to have high-risk pregnancies, or those from socially disadvantaged communities [19, 20]. During the steep learning curve of antenatal care, women must obtain vast amounts of information, understand and process it and then utilise it to maximise their experience of this critical life period [12]. A broader focus therefore needs to be placed on the experience of all women attending all types of antenatal care, with

a focus on providing accessible, easily understood information with the ultimate aim of reaching their expectations and maximising the outcome of their pregnancy experience.

The aim of this study was to women's knowledge of all aspects of the antenatal, intrapartum and postnatal experience. It was aimed to identify positive and negative factors of their journey and to highlight areas where the service to women can be ultimately improved.

## Methods

### Methodology

A mixed methods research design was utilised with data generated from two different approaches, which consisted of a questionnaire-based study and a semi-structured interview. “Mixed methods” refers to the integrated use of both qualitative and quantitative methods in one study. This technique was used as it initially allowed us to gain a broader understanding of women's knowledge and understanding surrounding their pregnancy, followed by a qualitative aspect permitting us to gain a deeper comprehension of women's understanding which could help improve their experience with future interventions.

### Quantitative

Initially, a quantitative approach was performed in a tertiary level maternity hospital in the Republic of Ireland sampling a population of pregnant women attending combined antenatal care. Initially, 300 women were invited to participate in an anonymised questionnaire-based study examining their recent experience of antenatal care and their knowledge of the antenatal, intrapartum and postnatal periods. The 39-item non-validated questionnaire consisted of a series of questions initially examining respondent demographics, followed by questions to ascertain women's understanding of different elements of antenatal care, such as ultrasound, antenatal clinic visits and labour and delivery. Women's knowledge of common interventions in pregnancy, such as Caesarean section and induction of labour, were examined. The questionnaire was designed by the research team. Written questionnaires were distributed in “low-risk” hospital and outreach antenatal clinics for completion while women were waiting to be seen between 32 and 40 weeks' gestation over a 2-week period. This pregnancy period was chosen as women would have had the opportunity to participate in both self-directed and healthcare-setting-provided antenatal care (with standard verbal and written information provided to all women), as well as interact with healthcare providers on a number of occasions throughout their pregnancy. Data were collated,

entered into a secure database and analysed using IBM SPSS Statistics.

## Qualitative

A qualitative research methodology was utilised to conduct the second arm of the study. Women were recruited from the overall sample if they had given written consent in the questionnaire to contact them in the postnatal period to conduct an interview. Purposive sampling was utilised to select women for participation. Of the 33 women who had indicated that they would like to participate in the qualitative arm, eight women were sampled taking parity and mode of delivery into consideration. This strategy was utilised to ensure varying viewpoints on women's understanding of maternity care were obtained. Prior to contacting women, it was ensured that they had a live birth, were more than 4 weeks postnatal and had no outstanding issues with their pregnancy or care. This ensured that women were confident and comfortable in their postnatal routine and had no clinical concerns. Women were contacted, and following written consent, semi-structured interviews were carried out by an author in the women's own home. The interviews were guided using a topic guide to ensure areas covering the woman's experience of antenatal, intrapartum and postnatal care were covered. The use of the semi-structured interviews allowed the discussion of other areas pertinent to this research. Interviews were digitally recorded and transcribed verbatim.

A qualitative research methodology allows the examination of people's perspective and the interpretation of their experiences [21]. In this study, transcripts were analysed manually using thematic analysis. Thematic analysis is a common method used that focusses on identifying patterned meaning across a dataset. It offers a flexible research tool to provide a detailed and complex account of data that cannot be obtained through quantitative sampling [22].

Ethical approval was received from the Clinical Research and Ethics Committee of the Cork Teaching Hospitals (ECM 4 (I) 01/04/14).

## Results

### Antenatal quantitative

Of the 300 questionnaires distributed, 199 questionnaires were completed giving a response rate of 66.3%. Demographics of women are outlined in Table 1. The mean maternal age was 31.2 years, with the majority of respondents married (62.3%,  $n = 124$ ) and in employment (77.8%,  $n = 155$ ). Primiparous were more likely to be younger and less likely to be married, but there was no statistically significant difference in marital or employment status.

When women's understanding of the purpose of antenatal care was examined, it was established that there were varying opinions on the rationale for attending antenatal clinics, and the concept of "monitoring" the pregnancy was discussed in 24.1% ( $n = 48$ ) of cases. All women received a dating ultrasound scan in this institution to establish viability and estimation of their due date, typically at the start of the second trimester, with 64.8% ( $n = 129$ ) and 86.9% ( $n = 173$ ) of women respectively mentioning these two concepts as rationale for this ultrasound. However, over one quarter (26.6%; 53) believed this scan was primarily to look for foetal abnormalities, which is largely incorrect. Haematological screening is performed at the booking visit (full blood count, blood group and serology), but only four (2.0%) women were aware of the reasons for this testing. A full blood count is performed to assess for anaemia, while blood group screening assesses for Rhesus status. Serology is performed to assess immunity to rubella and varicella and screen for sexually transmitted infections.

Knowledge acquisition in the antenatal period was primarily from family members (49.7%,  $n = 99$ ), with smaller proportions from hospital-provided literature (26.1%,  $n = 55$ ) (both those supplied in the healthcare setting and privately obtained), and their antenatal classes (23.6%,  $n = 47$ ). Some women reported multiple primary sources of information, including television, their GP and from the antenatal clinic.

Regarding information that was provided verbally in the healthcare setting by doctors and midwives, 63.8% ( $n = 127$ ) felt they always understood information, with multiparous

**Table 1** Respondent demographics

	Overall ( $n = 199$ )	Primiparous ( $n = 79$ )	Multiparous ( $n = 120$ )	$p$ value
Age mean (range)	31.2 years (18–41)	28.9 years (18–42)	32.5 years (19–42)	<0.001
Gravidity	2.07 (1–10)	n/a	2.82 (2–10)	n/a
Parity	0.94 (0–6)	n/a	1.53 (0–6)	n/a
	$n$ (Percentage)	$n$ (Percentage)	$n$ (Percentage)	
Married	124 (62.3%)	40 (50.6%)	83 (69.1%)	0.013
In employment	155 (77.8%)	61 (77.2%)	92 (76%)	0.925
Completed tertiary education	155 (77.8%)	63 (79.7%)	90 (75%)	0.545

Values are  $n$  (%) unless otherwise stated

women more likely to understand information provided in this setting (69.5%;  $n = 138$  versus 55.6%;  $n = 110$ ;  $p = 0.04$ ). Women's expectation of the purpose of antenatal care also varied, demonstrated in Table 2, with multiparous women having a statistically significantly greater expectation of a general "check-up" of the pregnancy, as well as having foetal anomaly screening performed.

Women were also questioned on their understanding of medical terminology. The term "breech" was correctly understood by only 37.1% ( $n = 74$ ) women, and "Caesarean section" (CS) was understood by only 84.4% ( $n = 168$ ) women. When asked if they knew of complications associated with CS, nearly one sixth of women (15.5%,  $n = 31$ ) were not aware of complications ("no", "not sure").

Response from the open-ended questions illustrated that some women reported poor understanding of anomaly screening, reasons for antenatal care (i.e. screening for complications of pregnancy), birthing options and birth plans.

I don't understand about elective sections.  
I didn't understand abbreviations or medical terminology.  
Technical info on chart sometimes difficult to decipher.  
...they just say everything is ok... what's ok?

### Antenatal qualitative

The qualitative component included interviews with eight women, the characteristics of whom are described in Table 3. Thematic saturation was reached following four/five interviews on antenatal and intrapartum topics, with full thematic saturation reached for postnatal topics following seven interviews. They included women who were both primiparous and multiparous, having different mode of labour onset and differing modes of delivery.

During the in-depth interviews, women indicated that they were satisfied with their interactions in the antenatal clinics, despite mentioning lengthy waiting times. Continuity of care with the same providers was seen as being beneficial, as seeing the same individual would have been preferable to

eliminate conflicting views: "conflicting views from different doctors... I found that a little confusing" (PN 1).

With regard to information provision, and rationale for antenatal care, some women felt they received too much information, "I got a lot of information, it was like an exam" (PN2) or there was a presumption that they had the knowledge in the case of multiparous women: "they took it for granted that I was ready for it this time" (PN3). However, others felt that there was a lack of information, the lack of which left one woman "on edge" (PN3).

### Intrapartum quantitative

Women's knowledge of labour and delivery was also examined. Defining induction of labour (IOL) was correct in 34.6% ( $n = 69$ ) of cases. Multiparous women were more likely to report that emergency CS was a complication of IOL than primiparous women (23.1%,  $n = 46$  versus 8.5%,  $n = 17$ ;  $p = 0.007$ ), with 56.3% ( $n = 112$ ) of all women overall noting "pain and discomfort" to be associated with IOL. Inhalational, intra-muscular and epidural anaesthesia were acknowledged as appropriate modalities for analgesia, with paracetamol noted as a mode of analgesia in 45.7% ( $n = 91$ ) of responses. Knowledge of operative vaginal delivery instruments was also examined with 80.4% ( $n = 160$ ) and 62.8% ( $n = 125$ ) correctly identifying a Neville Barnes Forceps and vacuum from images demonstrated in the questionnaire, with multiparous more likely to identify vacuum devices (48%,  $n = 38$  versus 68.3%,  $n = 82$ ;  $p = 0.0149$ ), with little difference in recognition of a forceps ( $p = 0.4615$ ). With regard to perineal trauma, 21.1% ( $n = 42$ ) of respondents believed perineal trauma occurred in 90.0% ( $n = 179$ ) of vaginal deliveries.

### Intrapartum qualitative

Similarly, there were varying viewpoints on labour and delivery during interviews, with some women happy with their experience, "they couldn't have done anymore" (PN4) and "I felt a kind of confidence in her [midwife]" (PN5). Other women described experiences that were different than

**Table 2** Women's expectation of purposes of antenatal care

Purpose	Overall $n$ (%)	Primiparous ( $n = 79$ )	Multiparous ( $n = 120$ )	$p$ value
Check-up of pregnancy	132 (66.3)	15 (18.9%)	117 (97.5%)	< 0.001
Check growth of baby	171 (85.9)	68 (86.1%)	103 (85.8%)	0.962
Ultrasound of baby	148 (74.3)	59 (74.6%)	89 (74.1%)	0.935
Auscultation of foetal heart	152 (76.3)	52 (65.8%)	100 (83.3%)	0.008
Anomaly screening	101 (50.7)	14 (17.7%)	87 (72.5%)	< 0.001
Discussing labour	113 (56.7)	45 (56.9%)	68 (56.6%)	0.967
Discussing delivery	104 (52.2)	36 (45.5%)	68 (56.6%)	0.165

Values are  $n$  (%) unless otherwise stated

**Table 3** Description of women in qualitative component

Title	Parity	Onset of labour	Mode of delivery
Postnatal 1 (PN1)	Multiparous	Spontaneous	Caesarean section
Postnatal 2 (PN2)	Primiparous	Induction	Operative vaginal delivery
Postnatal 3 (PN3)	Multiparous	Spontaneous	Spontaneous vaginal delivery
Postnatal 4 (PN4)	Primiparous	Spontaneous	Caesarean section
Postnatal 5 (PN5)	Multiparous	Spontaneous	Operative vaginal delivery
Postnatal 6 (PN6)	Primiparous	Spontaneous	Spontaneous vaginal delivery
Postnatal 7 (PN7)	Primiparous	Induction	Operative vaginal delivery
Postnatal 8 (PN8)	Multiparous	Spontaneous	Spontaneous vaginal delivery

expectations, “It [emergency CS] really wasn’t on my radar” (PN4) and “for me, it (this labour) was harder” (PN3).

Alternative viewpoints were expressed by women, which occasionally affected peoples’ labour experiences “a little bit of disorganisation” (PN3), and some of these were associated with fear, anxiety and feelings which were “overwhelming” (PN2) and “I was really nervous about going on the drip (oxytocin)” (PN6).

### Postnatal quantitative and qualitative

With regard to postnatal knowledge, primiparous women were less likely to expect pain following delivery (78.8%,  $n = 157$  versus 92.4%,  $n = 184$ ;  $p = 0.006$ ). Lochia was anticipated to last for 4 to 6 weeks in 55% ( $n = 110$ ), with no difference between primiparous and multiparous women’s answers, (54%,  $n = 43$  versus 55%,  $n = 66$ ;  $p = 0.9370$ ).

As with the antenatal experience, there were similar themes of unmatched expectations and lack of understanding surrounding certain postnatal topics. This largely surrounded breastfeeding, which led to interviewees reneging on previous plans to breastfeed. “I wish that maybe a bit more time had been put into helping me” (PN 1). Other topics that were poorly understood included deep vein thrombosis, basic neonatal resuscitation, expected duration of lochia and the healing of perineal trauma.

Some women felt that information surrounding postnatal complications, newborn education and perineal care were the topics, which they needed more direction and support with: “when the milk comes in...I wasn’t prepared for” (PN7) and “The pelvic floor muscles...I don’t understand them” (PN6).

### Discussion

This study suggests that the information provided at the antenatal clinic, intrapartum period and the postnatal wards is sufficient for some women, but lacking for others. On the whole, and as expected, multiparous women were more knowledgeable than primiparous women, particularly on the intrapartum

and postpartum experience, showing that experiential learning is integral for the pregnant woman [19].

Just under two thirds of women always understood the information provided in the antenatal setting, which worryingly means that the remainder are unclear on certain aspects of antenatal information provided. Factors involved with this lack of understanding can include information saturation [23], education level [24] and conflicting advice from healthcare providers [25]. It has been demonstrated that to optimise the differing needs of patients and the information they require, attitudinal profiling can assist in delivering the style and content of antenatal and intrapartum care to match the needs of women [26].

This study draws attention to some areas that women may need further education in, for example, induction of labour, where women were uncertain as to the definition, and indeed complications, with only a minority (31.6%) knowing that CS was a potential complication. It has been demonstrated that knowledge surrounding induction allows realistic expectations [27], and support, information and enhancing the perception of freedom have a positive impact on cervical ripening [19]. It is also integral that the postpartum period is focussed on education to normalise issues that are seen sometimes as complications, such as lochia and difficulties with breastfeeding.

Going forward, the optimum blend of information provision for women should be evaluated, as well as examining women’s understanding of common pregnancy-related conditions, such as pre-eclampsia, placenta praevia and their surrounding care. Patient engagement is key to better outcomes and reinforces that this is associated with lower cost of care, and more joyful clinicians [28]. Increased availability of antenatal classes specific to primiparous, multiparous and other sub-groups may benefit these women. Information should also be available in simple easily understood formats using non-medical terminology, and in multiple languages, allowing all women attending to clearly understand the necessary information. Efforts should be made to ensure that the provision of information is tailored to women’s needs [14]. Information should be provided in multimodal formats, in the form of written, oral, aural and interactive communication, with opportunities to reinforce and answer any questions.

Improved education and information provision should be at the cornerstone of as many aspects of maternity care. Women's expectation of pregnancy and birth may be both more accurate and realistic with improved education. This may be aided with the provision of focus groups led by women in the late postpartum period. This would allow women to ask a recent graduate of the antenatal experience questions in a non-judgemental way, with facilitation by a healthcare professional to ensure accurate medical information is provided. Peer to peer support groups have been demonstrated to be a successful aid in those with postnatal depression [29].

The strengths of this study lie primarily in its research design, examining both quantitative and qualitative aspects of women's understanding of pregnancy and the puerperium. A large cross-section of women attending antenatal care were examined, both primiparous and multiparous women, and those attending hospital-based and out-reach clinics, which gave us a breadth of understanding of their issues. The semi-structured nature of the interviews allowed us to focus on topics which had been highlighted in the quantitative portion of our study, ensuring a focus on areas that were women-centred and topical for the qualitative process. This was also achieved by carrying out interviews consecutively as opposed to contemporaneously.

The limitations of this study include that as women attending only one institution were examined, experiences may only be relevant to women attending this institution. Also, for the qualitative aspect of this study, we sampled a small cohort ( $n = 8$ , 4%) of respondents; a larger qualitative portion would allow us to examine different aspects of antenatal care. As an additional methodology, a qualitative component has been widely adopted as it provides insight into attitudes and opinions of women. However, qualitative methodologies are limited by their design, whereby the interpretation of the data is influenced by the researchers who undertake the analysis. Consequently, it must be acknowledged that the analysis of qualitative data from a differing perspective, using analytical software or not, may produce different results than the results presented here.

Despite this, given the depth of information that women imparted to us, we feel it is largely representative, as it encompassed both multiparous and primiparous women, having spontaneous vaginal, assisted vaginal and surgical deliveries. The issues raised allowed a focus our care on areas where there may be deficits in information provision (i.e. postpartum topics such as lochia and perineal care), with the overall aim of improving all elements of women's experiences, which is an international aim.

## Conclusion

So, do women know what we are talking about? There are significant differences in the level of knowledge between

primiparous and multiparous women, particularly in the peripartum and postpartum periods. The incidence of complications and interventions required in pregnancy and labour are poorly acknowledged, and an increased awareness in this area could potentially improve women's experience and reduce the distress and trauma that happen when a perceived adverse incident (such as a Caesarean section) happens unexpectedly. Future research should focus on the optimum way to educate women around pregnancy to maximise their experience and knowledge, with the overall aim of improving all elements of women's experience during pregnancy, labour and delivery.

## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflicts of interest.

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

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