



Ten women's decision-making experiences in threatened preterm labour: Qualitative findings from the EQUIPTT trial

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ABSTRACT

Background: Clinical triage of women in threatened preterm labour (TPTL) could be improved through utilising the QUIPP App, as symptoms alone are poor predictors of early delivery. As most women in TPTL ultimately deliver at term, they must weigh this likelihood with their own personal considerations, and responsibilities. The importance of personal considerations was highlighted by the 2015 Montgomery ruling, and the significance of shared decision-making.

Aims: Through qualitative interviews, the primary aim was to explore women's decision-making experiences in TPTL through onset of symptoms, triage, clinical assessment, and discharge.

Methods: Qualitative interviews were undertaken as part of the EQUIPTT study (REC: 17/LO/1802) using a semi-structured interview schedule. Descriptive labels of the coding scheme were applied to the raw transcript data. This coding scheme was then increasingly refined into key themes and allowed parallels to be made within and between cases.

Results: Ten ethnically diverse women who presented at six different London hospitals sites in TPTL were interviewed. Three final themes emerged from the data incorporating 10 sub-themes, 'Seeking help', 'Being "assessed" vs making clinical decisions together', and 'End result.'

Conclusion: Women described their busy lives and the need to juggle their commitments. Participants drew comparisons between their TPTL symptoms and 'period pain,' contrasting to typical medical terminology. Shared decision-making and the clinician-patient relationship could be improved through clinicians utilizing terminology women understand and relate to.

Women used language that highlighted the clinician-patient power balance. While not fully involved in shared decision-making, women were overall satisfied with their care.

Introduction

The Montgomery ruling in 2015 was a significant case influencing interpretation of the law around informed consent and decision-making in the United Kingdom [30]. This established that information given to the patient should include everything a reasonable person in that patient's position might expect, and not only what the clinician deems important. This shift from paternalistic decision-making by clinicians to shared decision-making has the capability to improve both patient experience and outcomes in maternity care [28,19].

Symptoms of threatened preterm labour (TPTL) cause anxiety and uncertainty in the women who experience them [6]. These feelings may

be compounded by the enigmatic decisions women are expected to make throughout the TPTL journey. This journey often begins when women try to make sense of the symptoms they are experiencing [6], then decide whether these symptoms warrant contacting a clinician [39]. The uncertainty of symptoms and decision to contact a clinician [38] may then be followed by misunderstanding if they use terminology clinicians are unfamiliar with when describing their symptoms [32]. Once women arrive at their hospital for assessment, decisions are made in triage to determine whether she needs admission or can be safely discharged. Accurate risk assessment and clear management plans are vital in this decision process and reduce stress and anxiety in women [13]. However, as TPTL symptoms alone are poor predictors of preterm delivery, clinical

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triage can be a difficult balance between the risk of unnecessary interventions and the risk of a preterm delivery [9,16].

Clinical triage of women in TPTL could be improved through utilising the QUIPP App. The QUIPP app is a free, validated mobile phone app which supports clinical decision-making by provision of individualised risks of delivery within clinically important time points (e.g. within 7 days; before 30 weeks) [7,37]. The risk score is based upon the woman's risk factors (e.g. previous preterm birth, late miscarriage, cervical surgery, twin pregnancy) and her clinical quantitative fetal fibronectin (qfFN) test result and/or transvaginal ultrasound measurement of cervical length (CL). Alongside displaying a percentage risk score, the QUIPP app illustrates the risk on an infographic donut chart, which can aid communication with women who prefer a visual representation of risk. Validation of the incorporated prediction algorithms indicate the QUIPP app provides reliable risk assessment and prediction of preterm birth [7] and would therefore be superior to assessment based solely on symptoms of TPTL.

The 2015 Montgomery ruling highlights that women should be encouraged and supported to be the decision-makers about their own health and care [8], and naturally the outcomes of these decisions will be dependent on what is important to the individual. Most women in TPTL ultimately delivery at term (after 37 weeks) [11] so they must weigh this likelihood with their own personal considerations, such as caring responsibilities for other children and their occupational workload [6].

One recent UK study focused on the decision-making experiences of women and clinicians during preterm labour [39]. We aimed to explore decision-making solely from the woman's perspective, with strong representation from the majority of women who experience TPTL but *do not* go on to established preterm labour and birth. Other studies have focused on women with prior antenatal risk factors for preterm birth [21,39] or those who were admitted to hospital as a result of their TPTL symptoms [38,15,6].

Through qualitative interviews, the primary aim was to explore women's decision-making experiences in TPTL through onset of symptoms, triage, clinical assessment and discharge. The secondary aim was to determine if clinical assessment is improved for women through use of the QUIPP app in their care.

Methods

Study design

Qualitative interviews were undertaken as part of the EQUIPTT trial (The Evaluation of the QUIPP app for Triage and Transfer) (REC: 17/LO/1802) which aimed to evaluate the impact of the QUIPP app on inappropriate management for TPTL at 13 different hospital sites [37]. A semi-structured interview method was used to explore topics relevant to the decision-making experiences of women in TPTL, within relaxed conversation where responses are not limited by leading questions [41,26].

Purposive sampling was undertaken to ensure the sample included women who met the eligibility criteria, with representation of women who: were experiencing their first or subsequent pregnancies (parity); attending tertiary and district general hospitals; had been admitted; had been discharged [27]. Women were eligible if they had presented to their unit with symptoms of TPTL when they were between 23⁺⁰ to 34⁺⁶ weeks' pregnant. All EQUIPTT participants were given the opportunity to complete a questionnaire about their symptoms before and after their clinical assessment [5] and to also consider undertaking a qualitative interview. Women were ineligible if they were under 16 years of age, unable or unwilling to give informed consent or unable to understand English.

Women who were willing to take part in a qualitative interview were offered a Participant Information Leaflet (supplementary file 1) about the interview and had the opportunity to ask questions. Informed

written consent was given before the interview was conducted, either via the telephone or face-to-face.

Data collection

Interviews were conducted between June 2018 and February 2019. The majority of participants were interviewed within 8 weeks of presenting to hospital with TPTL symptoms. The largest interval between presentation and interview was 16 weeks. All participants were still pregnant when interviewed. This allowed sufficient time to process the experience but avoid the busy postnatal period and minimise recall bias [4,2]. Over the telephone, and one participant was interviewed at her home. Of our 10 participants, 2 participants spoke English as a second language. Each interview took no longer than one hour. All interviews were recorded with consent on encrypted digital audio equipment. The recordings were then uploaded onto a secure, password protected University approved computer to ensure GDPR compliance and transcribed verbatim.

A research ethics committee approved semi-structured interview schedule (supplementary file 2) was designed by a midwife researcher (JC) with involvement of the St Thomas' Hospital/ King's College London Preterm Birth Patient and Public Involvement group prior to recruitment. This schedule was utilised during all interviews and contained prompts to aid expansion on points alongside freedom to discuss areas in more detail that were not covered by the schedule. This provided a guide for discussion whilst allowing the participant to focus on the issues important to her. Interview techniques were utilised that aimed to build rapport [12], such as actively listening, checking understanding by summarising responses and rearticulating questions when they were not initially covered.

The interview schedule covered the background of the participant (parity, pregnancy history/any previous TPTL episodes), knowledge and current experience of TPTL, how they felt about what happened when they were assessed in TPTL, and their experience of decision-making about the care they were offered in TPTL.

The first interview was conducted by researchers JC and NC, and the remaining 9 were undertaken by NC. Both JC and NC are qualified midwives. While the interviews were undertaken in their roles as a researcher not a midwife, if any (clinical) concerns were raised the appropriate escalation would be undertaken.

Data analysis

A third party, professional transcriber, transcribed the interview recordings. Data were anonymised and given a study identification number. Two researchers (HW and NC) ensured the transcriptions were accurate compared to the recordings.

The data were firstly indexed, to identify which sections of transcript related to specific characteristics (parity, prior risk factors for preterm birth [including: previous preterm birth, previous preterm rupture of membranes, previous cervical surgery, previous caesarean section at full dilatation, known uterine variant and/or collagen disorders cervical cerclage in situ]). Thematic analysis was undertaken by two researchers (NC and HW) and coded according to developing themes. After listening to and reading the transcripts numerous times, a coding scheme was established using the software NVivo 12 Pro [25].

Descriptive labels of the coding scheme were applied to raw data in the transcripts. This coding scheme was then increasingly refined by the two researchers into key themes and allowed parallels to be made within and between cases. To understand and endeavour to explain the patterns between these experiences, a case comparative model was adopted to explore the contextual conditions which may be associated with our findings [31]. Continuous communication between the two researchers confirmed agreement on the themes being generated.

Interpretation bias was reduced through utilising two researchers during analysis. Efforts were made to minimise further bias, especially

as the researchers conducting the interviews and analysing the findings were also qualified clinicians. This potential bias could include the researchers' positive or negative judgements about the woman's clinical experience, or the quality of care that she had received from clinicians. Reflexivity was maintained through regular researcher debriefing with the study team, and through writing reflective notes following each interview. Any clinical concerns highlighted during the interview were escalated appropriately with the sites to and to optimise patient care. Likewise, any positive feedback about sites was disseminated back. Reflexive sensitivity was required to ensure the researchers existing theories about preterm birth care were not simply corroborated. Unexpected and opposing findings were actively pursued and explored in detail [40].

Findings

Altogether 118 women who completed the questionnaire booklets gave consent to be contacted about taking part in an interview. After contacting these women individually, 10 women (9%) gave written informed consent and undertook a qualitative interview (see Table 1). The 10 women interviewed came from 6 of the 13 EQUIPTT study sites. All participants were from sites geographically situated in London.

Three final themes emerged from the data incorporating 10 sub-themes, 'Seeking help', 'Being "assessed" vs making clinical decisions together', and 'End result' (see Fig. 1).

These themes illustrate the experience and views of women's decision-making experiences in TPTL, which was our study aim. Verbatim quotes have been encompassed within the themes, utilising the participant numbers in Table 1.

Theme one: Seeking help

Ruminating and rationalising

Despite having TPTL symptoms, the women interviewed were worried that "you almost don't want to be the boy who cried wolf" W9 by seeking help when clinically it was not necessary. This led to them rationalising that the TPTL symptoms were due to other things such as being busy, feeling bloated or simply because they were pregnant so unaware of what is abnormal.

"I should have probably gone in that evening... but also partly because I thought 'what if it's just nothing', you know? I mean ... because it's my first pregnancy everything's scary, everything I experienced is very scary. Um, and

to be perfectly honest with you... I would probably like to go into triage everyday" W1.

Busy women: Beyond the bump

Our participants were not defined by their pregnancy alone. The women had busy lives, filled with work commitments, exams and other children to care for. They often had to juggle coming into hospital for an assessment and seeking help around their full lives.

"I had an exam that morning (laughs), so because of that I sort of thought I can't, I can't do it now, like, the pain has to go away" W1.

"Because of this and my son... back from the school, it's hard to manage" W7

How women express their symptoms

When describing the symptoms that made them seek help and be assessed, 8 of the 10 participants said their symptoms of TPTL felt "a bit like period pain" W9.

The tipping point

After ruminating and rationalising, the women eventually reached a point where they decided they needed to seek help. This was often not immediately, but after a period of trying to rest to see if the pain would ease. Eventually they reached a point where they realised that "something wasn't normal to me anymore" W8.

"I just couldn't get a bearing on it" W4

Theme Two: Being "assessed" vs making clinical decisions together

First contact

Once the women had decided that they needed to seek help, they often first "phoned the midwife" W10, highlighting that they preferred a clinician's input in making the decision to go to hospital. However, some were happy making that decision alone and decided to go directly to the hospital without telephoning first. One woman decided to search the internet first before calling the midwife. These findings further support, the extensive consideration given to hospital attendance for women in

Table 1
EQUIPTT qualitative women interview study participants.

Participant number	Demographics		This pregnancy		TPTL gestation (weeks)	Hospital site		Interview Undertaken how long after TPTL?	Type
	Age (years)	Ethnicity	Parity	Preterm risk factors?*		Site	QUIPP app standard management?		
1	36	Other	Primip	No	32	District general	No	4 to 8 weeks	Telephone
2	30	European	Primip	No	31	District general	No	4 weeks or less	Telephone
3	34	European	Multip	Yes – cervical cerclage in situ	32	Tertiary	No	4 to 8 weeks	Telephone
4	36	European	Multip	No	32	District general	No	4 weeks or less	Telephone
5	31	Bangladeshi	Multip	No	29	Tertiary	No	8 to 16 weeks	Telephone
6	36	Other	Primip	No	28	Tertiary	No	4 to 8 weeks	Telephone
7	38	Middle Eastern	Multip	No	30	District general	Yes	4 to 8 weeks	Face-to-face
8	32	Other	Primip	No	34	District general	Yes	4 to 8 weeks	Telephone
9	39	European	Primip	No	24	Tertiary	Yes	8 to 16 weeks	Telephone
10	32	European	Multip	No	27	District general	Yes	8 to 16 weeks	Telephone

*Including: cervical cerclage, previous preterm birth, previous preterm rupture of membranes, previous cervical surgery, previous caesarean section at full dilatation, known uterine variant and/or collagen disorders.

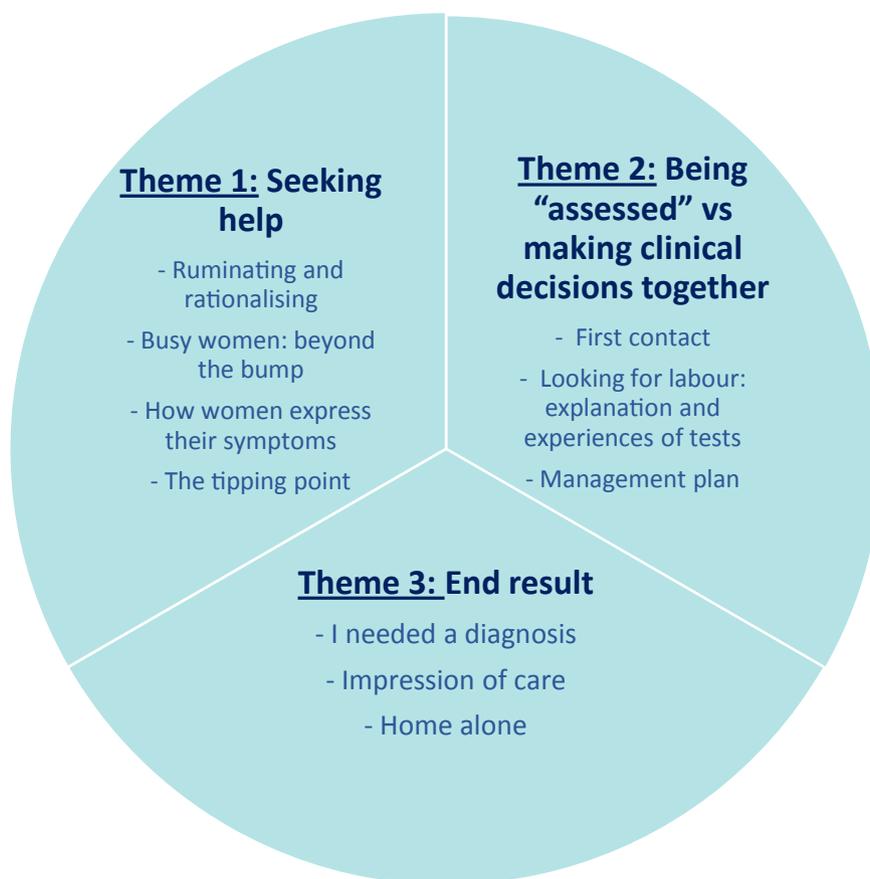


Fig. 1. The three final themes and 10 sub-themes This figure visually displays the three final themes and 10 sub-themes identified after analysing the data.

TPTL.

“I decided to call the midwife” W5

“I actually called the midwife” W8

Looking for labour: Explanation and experiences of tests

Often the women interviewed did not report feeling involved in the decision-making to have tests undertaken. This was not necessarily perceived negatively by women, as when asked about their involvement in which tests were done, one interviewee replied “I was just happy to be seen” W9. This attitude could reflect how long she had waited for assessment, and not wishing to prolong by asking too many questions. In one case the decision-making process was negative. A woman recalled her involvement in whether a repeat fFN test should be undertaken, following an inconclusive first test. She expressed conflicting emotional reactions due to the pressure: “I felt like the doctor...probably swayed me towards not having it done” W5 but then when she left the hospital she felt the burden of “have I made the right decision” W5 and “felt a bit unsure” W5.

When discussing their experience of tests, most women remember being placed on a cardiotocograph (CTG) monitor before the assessment went any further. The women understood that this was “to check if I was having contractions and the baby’s heartbeat” W5. The over-riding concern of the women appeared to be their baby’s viability which was satisfied by hearing the fetal heartbeat. The reassurances that the fetal heart rate brought women tended to over-shadow the potential looming concern of preterm birth. This demonstrates a possible discord with clinician’s who would still be alert to a potential preterm birth.

Most women did not understand the clinical relevance of fFN testing.

Of those who had a cervical length scan undertaken, there was a slightly broader understanding of its clinical importance. “They did a trans-vaginal scan for cervical length which was luckily normal” W6.

Despite a lack of understanding and involvement in their assessments, women seemed satisfied with the explanations that the clinicians gave them about the tests that they would be undertake during the TPTL assessment. “...it has been explained very clearly what the steps would be and what they would be doing and why” W8.

Management plan

When describing the subsequent management plan as a result of being assessed for TPTL, the women used language (such as ‘I had to’) which demonstrated the authority that they felt clinicians had, and their passivity in the process. It was not acknowledged they also should or did have a voice in their management plan.

“I had to stay there [the antenatal ward] for four days” W10

“They released me around 1am” W1

Despite this, the women seemed happy with their management plans. “I felt like they [the clinicians] made the decisions, but I was confident in their care. I didn’t feel like I needed to weigh in on it” W3. Joint decision-making did not appear to be a priority to women in this emergency setting.

Theme three: End result

I needed a diagnosis

Only one of the 10 women interviewed was admitted as a result of her assessment. The majority of women were sent home after being told that they were not in preterm labour, but without another firm explanation or diagnosis for their symptoms.

“...people then afterwards were like ‘oh, so what happened? What was

it?' *I don't know. Um, but I think that, you know, the mystery of pregnancy and childbirth ...I felt like I needed a diagnosis*" W2

"just one of those things" W4

However, some women felt they did not need a firm diagnosis, and that they just needed to know that everything seemed okay.

"...she told me [the symptoms] most likely related to Braxton hicks, and that...everything felt normal, the heartbeat was normal, and...that was as far as I needed to hear to be perfectly honest with you" W1

Impression of care

Most women felt they had "received really really good care" W2 and that it was "thorough" W4.

However, women did discuss how busy the unit was. "I knew they were rushed off their feet and...sort of quick treatment when I was in there, but that's fine" W9.

The women did not think that this impacted the care that they were given by hard-working frontline staff. "...the unit was busy and...the midwife was really busy. Not in a sort of 'oh, I'm too busy to see you'" W5

However busy units had longer waiting times which increased maternal anxiety. "There was just a bit of waiting... that's expected, but it's just when you are quite anxious...you would like to be attended" W6.

Home alone

The majority of women found the experience of being assessed for TPTL "emotional" W2. Once home, those who were not admitted to hospital ensured they "just had complete rest" W6 after spending a long day being assessed. The one woman who was an inpatient also found the situation "emotional" W10. This was heightened because she was an inpatient away from her older child. While she found that her inpatient stay "was alright" W10 she said "I just don't like being in hospital" W10.

After a long day, one woman explained that once she was home she "forgot" W8 what tests had been undertaken on her and found it hard to "explain it to my partner" W8.

Discussion

Main findings

This study interviewed 10 ethnically diverse women from 6 different hospital sites across London. The majority of participants were women who experience a TPTL episode but did not go on to be admitted due to their symptoms, and none delivered preterm as a consequence of this TPTL episode. Only one participant had an antenatal risk factor for preterm birth. In previous studies participants comprise mostly of women with prior risk factors for preterm birth [21,39] or those admitted to hospital as a result of their TPTL symptoms [38,15,6]. This study therefore uniquely explores the experiences of low risk women who experienced TPTL but did not go on to deliver preterm as a consequence of that TPTL episode.

Participants explained the process of trying to understand their TPTL symptoms, as they were unsure what was normal for pregnancy, before eventually seeking help. This ruminating and rationalisation decision process has been a finding in other studies [23,10,38,3,6]. However when our participants did decide to access care, none reported feeling dismissed by clinicians, which has been found in other studies, especially when women present without antenatal risk factors or prior experiences [22,21,39].

The women describe busy lives and the need to juggle their commitments before deciding to come into hospital for assessment. The knock-on effect of hospital admission for TPTL on women's personal lives has been described before [24,6], however, how this affects women's decision-making to initially seek help when in TPTL has not been. Care providers should be aware that modern pregnant women challenge the 'worried well' stereotype and are likely to have thought long and hard about whether they should seek help. When holistically assessing women in TPTL and making joint decisions, clinicians should be aware of the importance and weight of women's personal lives.

Our participants very often drew comparisons between their TPTL

symptoms and 'period pain', which has not been described in other studies [38,32]. Midwives often use this description when questioning women in early (term) labour, and it is used in patient information [20,34]. However, this description contrasts to typical medical terminology for definitions of preterm labour symptoms which centre on tightening's and abdominal pain [16,1,29,37]. This suggests a lack of empathy with women's perspectives of TPTL which may be exacerbated by male-dominated obstetric heritage, cultural taboos around menstruation and the clinician's desire to be physiologically correct. Periods may not occur in pregnancy, but a woman's frame of reference for pain makes the description of "period-like pain" more honest and reliable than commonly used clinical language. Another study (which was limited to African American participants) found similar results in that women did not necessarily use medical terminology to describe their TPTL symptoms [32], highlighting that this is universal to women regardless of their ethnicity. This suggests that clinicians need to expand their descriptors of TPTL.

The reluctance of our participants to seek help immediately, and the subsequent gratitude for assessment, may be explained by the anxiety-inducing waiting times and awareness of the over-stretched NHS resources that women described. Many women spoke of how busy the unit and/or staff were. Clinicians should be mindful that women are sensitive to this, and this may affect their decision-making. Other TPTL studies have reported that women do not want to waste clinicians' time [39] and this feeling may increase for women when they present at a busy unit.

The women recalled that CTG monitoring was utilised as the primary tool to guide their further assessment. However, as we know participants' knowledge around preterm predictive tests is lacking, this may be the participants' perception rather than the clinician's management process. If the CTG is being utilised by clinicians as the primary tool to guide further assessment, they should be aware that even if the CTG is monitoring uterine activity effectively, symptoms of TPTL (including uterine contractions) are not a good predictor of preterm birth [9,16]. Utilising predictive tests alongside the QUIPP app would improve assessment and prediction of TPTL [7].

Women's over-riding concerns were regarding the viability of their baby, over-shadowing concerns for early birth itself. Our findings suggest that having a CTG seemed to reassure women more than the predictive tests for TPTL and that the women had minimal clinical knowledge of fFN testing and its utility. The discord between the clinicians most significant concern (preterm birth), compared to the women's most important concerns (the viability of her baby) raises questions whether the importance of TPTL, and its predictive tests, are being explained fully to women once viability has been confirmed. The lack of knowledge around preterm predictive tests that women who were interviewed displayed, demonstrates the power balance between clinicians and women. This lack of knowledge is likely to affect how women make decisions over their care as they cannot be fully informed.

Our findings echo those of previous women's health studies which found that shared decision-making is often not happening in practice [35,18]. Interestingly, while our participants were not actively involved in shared decision-making, they reported satisfaction with the explanations and care given to them. While some women may not wish to be actively involved in TPTL decision-making [39], it has been argued that different levels of involvement may be appropriate and that these informed preferences should be discussed with patients and not presumed by clinicians [14,17]. The language that our participants utilised around their care plan highlighted the power imbalance between themselves and clinicians, suggesting that these informed preferences were not discussed by clinicians. Other studies have found that women will doubt their own experiences of TPTL rather than challenge clinician authority [22].

Strengths and Limitations

Our findings support previous research [6], that suggests women with TPTL can continue to struggle with uncertainty even after they

have been triaged and clinically assessed. Recent evidence has shown that both women and clinicians would appreciate a decision support tool, such as the QUiPP App [7], that could help alleviate some of this uncertainty through accurately risk-assessing women in TPTL [39]. Our secondary aim was to determine if decision-making assessment in triage is improved for women through use of the QUiPP app in their care. However, only four participants were assessed in a unit at a time when QUiPP was part of the protocol, and none of those mentioned it being used in their care, so this could not be explored. The effect of using a decision-support tool, such as QUiPP, on women in TPTL therefore requires further research. A previous study of the QUiPP app's use in a preterm surveillance clinic (where all clinicians were acquainted with the app and its features) highlighted that 90% of women (n = 60) agreed that their understanding and decision-making regarding their care improved after being counselled by clinicians with the app [36].

Participants were given the choice of being interviewed via telephone or face-to-face. These two options ensured the greatest flexibility for the participants, and both were undertaken with the participant based in their own home. This was preferable to undertaking the interview in a hospital setting which would not have ensured a similar convenient, neutral, relaxed environment. We found that our one face-to-face interview did not produce data that was of superior depth or quality, compared to our 9 telephone interviews. Other researchers have reported likewise [33,12].

Limitations of this study include that all participants were self-selecting and all attended hospital units in London, UK. Although 118 women gave consent to be contacted about taking part in an interview, only 10 women gave written informed consent and undertook a qualitative interview. Despite offering flexible telephone interviews to women it may be that, once discharged back home, their usual busy schedules resume (as highlighted in our first theme). Alternatively, women who were happy with their care may have been more likely to agree to be interviewed, therefore skewing the sample.

While most women were interviewed within 8 weeks of their TPTL presentation, however, 3 women were interviewed 8–12 weeks after presentation. Those interviewed with this longer interval may be more likely to have recall bias. We were unable to interview any women who did not speak English; however, a strength of our study is that 2 of our 10 participants spoke English as a second language.

During these interviews, no clinical concerns were raised that required addressing by the interviewers (as described in the methods section). However, one participant raised numerous non-urgent clinical questions. The interviewer advised that she raise these with her midwife at her next appointment and the interviewer informed a midwife at the hospital regarding the participant's concerns once the interview had concluded.

Conclusion

Our findings suggest that women were not fully involved in shared decision-making, had limited understanding about the predictive tests used in their care, had conflicting priorities, and used language that highlighted the clinician-patient power balance. Despite this, women seemed satisfied with their care overall.

Shared decision-making and the clinician-patient relationship could be improved through clinicians utilizing terminology women understand and relate to (such as 'period-like pains' when discussing TPTL symptoms). They also need to clearly explain the utility of different predictive tests, and to be aware that some women appreciate different levels of involvement in decision-making. The findings of this study also suggest that clinicians are unaware of the balancing women undertake to manage their busy lives and personal commitments.

Ethical approval

EQUIPTT was granted a favourable ethical opinion (REC reference 17/LO/1802) by the London Bridge Research Ethics Committee on 21 November 2017

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.srhc.2021.100611>.

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