

# BMC Pregnancy and Childbirth

## Identifying fear of childbirth in a UK population: qualitative examination of the clarity and acceptability of existing measurement tools in a small UK sample --Manuscript Draft--

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<b>Abstract:</b>	<p><b>ABSTRACT</b></p> <p><b>Background :</b> Fear of childbirth is related to but not synonymous with general anxiety, and represents a superior predictor for maternal and infant outcomes. There is a need to improve the identification and provision of support for women experiencing high fear of childbirth. However it is uncertain as to whether existing measurement tools have appropriate content validity (i.e. cover the relevant domains within the construct), practical utility, and whether they are acceptable for use with a UK population. This study aimed to (1) identify the utility and acceptability of existing measures of fear of childbirth (FOC) with a small UK sample and (2) map the content of existing measures to the key concepts of fear of childbirth established by previous research. <b>Methods :</b> Ten pregnant women; five with high and five with low fear of childbirth participated in a cognitive interview covering four most commonly used measures of fear of childbirth: 1. The Wijma Delivery Expectancy Questionnaire (WDEQ A), 2. The Oxford Worries about Labour Scale (OWLS), 3. The Slade-Pais Expectations of Childbirth Scale – fear subscale (SPECS) and 4. The Fear of Birth scale (FOBS). Each measure was also reviewed by participants for ease and clarity of understanding and acceptability. The measures were then reviewed against the key domains identified in the fear of childbirth literature to ascertain the adequacy of content validity of each measure. Interviews were analysed using thematic analysis for each scale item. <b>Results :</b> All measures except the FOBS, included items that either women did not understand or, if where there was understanding the meanings were inconsistent across women. All measures demonstrated limited acceptability and content validity for the specific construct of FOC. Therefore, none of the measurement tools currently used within the UK met criteria for understanding, acceptability and content validity for measurement of FOC. <b>Conclusions :</b> Findings emphasise a need to develop a specific fear of childbirth tool with good clarity which demonstrates appropriate content validity, and that is acceptable in presentation and length for pregnant women in a UK population.</p>	
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2 clarity and acceptability of existing measurement tools in a small UK sample.  
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ABSTRACT. **Background:** Fear of childbirth is related to but not synonymous with general anxiety, and represents a superior predictor for maternal and infant outcomes. There is a need to improve the identification and provision of support for women experiencing high fear of childbirth. However it is uncertain as to whether existing measurement tools have appropriate content validity (i.e. cover the relevant domains within the construct), practical utility, and whether they are acceptable for use with a UK population. This study aimed to (1) identify the utility and acceptability of existing measures of fear of childbirth (FOC) with a small UK sample and (2) map the content of existing measures to the key concepts of fear of childbirth established by previous research. **Methods:** Ten pregnant women; five with high and five with low fear of childbirth participated in a cognitive interview covering four most commonly used measures of fear of childbirth: 1. The Wijma Delivery Expectancy Questionnaire (WDEQ A), 2. The Oxford Worries about Labour Scale (OWLS), 3. The Slade-Pais Expectations of Childbirth Scale – fear subscale (SPECES) and 4. The Fear of Birth scale (FOBS). Each measure was also reviewed by participants for ease and clarity of understanding and acceptability. The measures were then reviewed against the key domains identified in the fear of childbirth literature to ascertain the adequacy of content validity of each measure. Interviews were analysed using thematic analysis for each scale item. **Results:** All measures except the FOBS, included items that either women did not understand or, if where there was understanding the meanings were inconsistent across women. All measures demonstrated limited acceptability and content validity for the specific construct of FOC. Therefore, none of the measurement tools currently used within the UK met criteria for understanding, acceptability and content validity for measurement of FOC. **Conclusions:** Findings emphasise a need to develop a specific fear of childbirth tool

1 with good clarity which demonstrates appropriate content validity, and that is  
2 acceptable in presentation and length for pregnant women in a UK population.  
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7 **Keywords:** Antenatal anxiety; anxiety measure; childbirth anxiety; fear of childbirth;  
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## MAIN FILE

### Background

Fear of childbirth can have adverse impacts on women's experience of birth and birthing outcomes<sup>1-3</sup>. Research on prevalence rates for FOC show extensive worldwide variation, ranging from 1.9% to 30%<sup>4-6</sup>. This may be due to genuine cultural differences, or a reflection of the lack of clarity in the definition of the term FOC alongside (or in conjunction with) the diversity and adequacy of measurement tools<sup>6,7</sup>.

General measures of anxiety have often been used as proxy measures for FOC.

However, although there is an element of comorbidity with general anxiety, the two responses are not synonymous<sup>8</sup>. The level of fear and anxiety specific to pregnancy and birth is a superior predictor for maternal and infant outcome over general anxiety alone<sup>9</sup>. This emphasises the need for specific assessment of FOC. Although specific assessment tools for FOC do exist, their utility for use with a UK population is currently unclear.

Fear relating to birth occurs on a spectrum, and when at its most severe it can resemble a phobic response<sup>10</sup>. Interpretation of the severity of FOC has been limited by variations in the thresholds applied to scores from self-report questionnaires, and in the timing of measurement during pregnancy<sup>11,12</sup>. This is particularly pertinent for a UK sample where translations without validation have been used. Timing is a pertinent issue for the measurement of FOC, and has received limited systematic investigation to date. In addition, the acceptability and clinical utility of existing measurement tools for a UK population has not yet been evaluated.

1  
2 Underpinning these problems was the absence of a clear definition for FOC<sup>12</sup>.

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4 However a recent investigation has systematically explored the experiences of FOC  
5 and has identified ten domains<sup>13</sup>. These now provide a basis upon which to examine  
6 whether existing measures provide comprehensive assessment of the elements that  
7 women fear about birth.  
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### 14 **Current measures for Fear of Childbirth**

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16 A literature search was conducted by members of the research team (KS, PS) to  
17 identify current measures used to assess fear or concerns relating to pregnancy and  
18 childbirth using WOK, SCOPUS and EBSCO (including Medline and CINAHL)  
19 databases. Search terms included “anxiety”, “fear” and “preg”, “antenatal”, “birth”.  
20  
21 Empirical studies assessing fear, anxiety, concerns or worries about pregnancy  
22 and/or childbirth were identified and their method of assessment extracted. Review  
23 papers were included and additional references hand searched. Studies involving  
24 assessment of fear/anxiety/stress specific to childbirth with participants who were  
25 either pregnant and/or postpartum were included. There was no exclusion on the  
26 basis of parity of the sample. Exclusion criteria were: not assessing psychological  
27 anxiety or fear relating to childbirth, not assessing psychological appraisal but the  
28 availability of tangible assets (e.g. financial information), not a childbearing sample.  
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51 Scales that met the inclusion criteria, where item content focussed on fear or  
52 concerns specific to birth, were selected for further evaluation. Four main scales  
53 were identified: Wijma Delivery Expectancy Questionnaire Version A (WDEQ-A)<sup>14</sup>,  
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Fear of Birth Scale (FOBS)<sup>15</sup>, the Oxford Worries about Labour Scale (OWLS)<sup>16</sup>, and the Slade-Pais Expectations of Childbirth Scale (SPECS Fear subscale)<sup>17</sup>.

The Wijma Delivery Expectancy Questionnaire Version A (WDEQ-A) assesses expectancies of childbirth<sup>14</sup>. Version B ( WDEQ-B) measures experience and is used postnatally so is not relevant here. The 33 item measure is the most frequently used questionnaire to measure FOC<sup>12</sup>. Responses on WDEQ-A are recorded on a scale of 0 (extremely) to 5 (not at all); total scores range from 0 to 165, and threshold scores for high ( $\geq 66$ ) or severe ( $\geq 86$ ) FOC have been suggested<sup>18,19</sup>. The scale has demonstrated good reliability and validity particularly in research settings<sup>20-22</sup>.

The questionnaire has good internal consistency reliability and split-half reliability OF greater than or equal to 0.87<sup>14</sup>. Scores for nulliparous women have been identified as higher than for multiparous women using this scale<sup>20,23</sup>.

Although the WDEQ-A was developed in and has been extensively used in Sweden<sup>14,18,19,24-25</sup> it has also been used in Norway<sup>1,8,26</sup>, Australia<sup>20,27</sup> and England<sup>23</sup>.

Items were developed purely on the basis of clinical experiences of two of the authors<sup>14</sup>. Ensuring appropriate content validity for any questionnaire normally requires exploration of the relevant domains within the construct the scale aims to measure, and using the experiences of women themselves is recommended<sup>28</sup>.

Furthermore studies using the WDEQ-A have identified major issues in item interpretation following translation into English<sup>23,27,29</sup>.

The utility of existing cut-off scores for high FOC in UK populations have also been questioned. A recent systematic review highlighted significant heterogeneity in the



1 application of threshold scores inferring FOC severity<sup>12</sup>. Zar, Wijma and Wijma<sup>18</sup>  
2 initially developed the threshold for low, moderate and high fear using the distribution  
3 of scores across each quartile in a study of women in Sweden (n= 196). The  
4 threshold for severe FOC was devised by Ryding et al.<sup>19</sup>, by selecting scores in the  
5 upper tenth percentile in a study of women (n= 1981) in Sweden. Inference of  
6 severity using statistical distribution of scores that (1) may be specific to that cultural  
7 population and (2) has not been assessed in terms of implications for level of  
8 impairment may not be appropriate. Identification of thresholds associated with  
9 impairment to daily life and specific to the relevant population and/or culture would  
10 enable accurate identification of women with significant FOC who may benefit from  
11 intervention. The clinical utility of cut off scores on the WDEQ-A was recently  
12 examined in Italy<sup>11</sup>, however validation with a UK population is yet to be completed.  
13 Studies with UK populations have reported higher mean scores for fear using the W-  
14 DEQ-A<sup>23</sup>, which suggests that inference of severity based on normative scores from  
15 Swedish populations may be misleading.  
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39 The *Fear of Birth Scale*<sup>15</sup> (FOBS) is a measure which is increasingly gaining interest  
40 as a simple clinical tool to identify elevated levels of FOC. The FOBS assesses the  
41 extent to which women are experiencing fear and worry in relation to the  
42 approaching birth using two items recorded using a visual analogue scale  
43 (VAS). Using a 100mm VAS scale women indicate the extent to which they have felt  
44 (1) calm/worried or (2) no fear/fear in relation to birth. Internal consistency of the  
45 scale is very good ( $\alpha = .84$ ), and the FOBS demonstrates a moderate correlation ( $r =$   
46  $.66$ ,  $p = <.001$ ) to total scores on the WDEQ-A<sup>27</sup>. Furthermore, an average score of  
47 54 across both items has been found to effectively identify those reporting severe  
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1 FOC on the WDEQ-A, with a sensitivity of 89% and specificity of 79% in a sample of  
2 Australian women<sup>27</sup>.  
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7 The FOBS was generated using semi-structured interviews with a think aloud  
8 technique with 31 pregnant women (17-20 weeks gestation). Content analysis was  
9 then conducted to describe the different dimensions of fear of birth. Whilst the  
10 positive utility of the scale has been assessed against the WDEQ-A in a large  
11 Australian cohort<sup>30</sup>, the clinical utility of this scale within the UK is uncertain and  
12 warrants further validation. Use of the FOBS has recently been supported as a  
13 clinically effective way to open discussions around fear of childbirth, prior to in-depth  
14 exploration of fears if present<sup>12,31</sup>.  
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29 The *Oxford Worries about Labour Scale*<sup>16</sup>(OWLS) assesses worries around labour  
30 and delivery. The 10-item measure was developed and psychometrically assessed  
31 with a large pilot sample of women in England (n= 240) reporting on women's  
32 experiences of maternity care in England as part of a large survey (n= 2,697).  
33 Responses are scored on a 4-point scale ranging from 1 (very worried) to 4 (not  
34 worried at all), and total scores range between 1 to 40. Exploratory factor analysis  
35 identified three sub-scales relating to fears about 1) labour pain and distress, 2) pre-  
36 labour uncertainty and 3) interventions. The scale has demonstrated good construct  
37 and divergent validity<sup>16</sup> but it has received limited use and requires evaluation for  
38 utility in prospective designs.  
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56 The *Slade-Pais Expectations of Childbirth Scale*<sup>17</sup> (SPECS) measures women's  
57 expectations of childbirth. The full scale consists of 50 items and six factors, scored  
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1 on a 5 point scale ranging from 1 (strongly agree) to 5 (strongly disagree). The fear  
2 subscale (10 items) specifically assesses fears about giving birth. Scores on this  
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4 subscale range between 10-50. Validity and reliability within a UK sample has yet to  
5  
6 be fully reviewed, however an initial indication of psychometric robustness suggests  
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8 acceptable internal reliability and good construct validity<sup>17</sup>. Items were developed  
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10 from semi-structured interviews with 18 pregnant women in England, where their  
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12 expectations around childbirth were explored. Further testing with 148 pregnant  
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14 women demonstrated promising psychometric properties. The dimensions of the  
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16 SPECS reflect key areas highlighted in previous literature about the type of  
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18 expectations held by women prior to giving birth, including levels of control, pain,  
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20 fear, support from partners and healthcare staff and positive anticipations of giving  
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22 birth. Further evaluation of the scale is required if used as a standalone measure for  
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24 FOC<sup>17</sup>.  
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32 Despite a number of measures available to assess FOC in the UK, it is uncertain  
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34 whether these measures fulfil basic requirements of clarity and acceptability to  
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36 pregnant women. Cognitive interviews are a well established methodology which  
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38 enables the identification of any issues in clarity and acceptability across  
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40 participants<sup>32,33,34</sup>. More specifically, as indicated by Collins et al.<sup>34</sup> they can be used  
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42 to check if '(i) respondents can understand the question concept or task, (ii) they do  
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44 so in a consistent way, and, (iii) in a way the researcher intended'. These are clearly  
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46 key issues in whether a questionnaire has utility in a particular cultural context. In  
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48 addition to clarity and acceptability scales must also demonstrate appropriate  
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50 content validity in terms of the range of domains covered..  
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## 59 **Aim**

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- (1) To evaluate four current tools for FOC in terms of their adequacy for use with a UK population based on women's understanding of the measure and the acceptability of completing the measure
  - (2) To assess content validity of each measure against the ten key elements of FOC<sup>13</sup>.

## Methods

### Design and Approach

To examine clarity and acceptability of the measurement tools the study used a qualitative research design employing cognitive interviewing. This is an approach used to identify their internal processes and opinions. It can be used as a tool to assess participants' views on the clarity and acceptability of items whilst completing a measure. Cognitive interviewing is a method of establishing participants' understanding of individual items<sup>35</sup>. It examines participants' comprehension of each item, their ability to retrieve information required to provide an answer, make a judgement about the item's relevance and provide a response that corresponds to the original purpose of the item. There are two techniques used in cognitive interviewing; think-aloud and verbal probing<sup>35</sup>. Think aloud techniques involve the researcher reading the items to the participant, who then verbalises their thoughts. Verbal probing involves additional specific questions that are asked to elicit further information. Both techniques were employed during the interviews. Rather than being informed via saturation, small sample sizes are sufficient to identify major issues in item clarity and acceptability and the recommended sample size for a cognitive interview design is five to fifteen participants<sup>32</sup>

Content validity was examined via review against the ten key elements of FOC<sup>13</sup>.

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2 **Participants**  
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4 Pregnant women (n=10) were recruited. As the primary objective of this element was  
5 to evaluate the comprehension and acceptability of items, purposive sampling with  
6 half women reporting low and half high levels of fear of childbirth was employed.  
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9 Presence of elevated fear of childbirth was inferred via women's self-report but also,  
10 for the majority, confirmed by the clinical judgement of the specialist midwife (GH).  
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20 Women aged 16 and over, fluent in spoken English in their second and third  
21 gestational phases stages of pregnancy were eligible to take part. Participants were  
22 excluded if they had a history of stillbirth or intrauterine death, had an ongoing  
23 serious maternal medical condition, if there was a medical concern for the baby in  
24 their current pregnancy, if they were under the care of the fetal medicine unit, or the  
25 perinatal mental health team or the enhanced midwifery team. Table 1 provides  
26 demographic characteristics.  
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42 **Researcher characteristics**  
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44 Women were made aware that the interviewer was a woman clinical psychologist  
45 with perinatal experience but no prior assumptions about how the measures to be  
46 covered would be appraised.  
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52 **Measures**  
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56 The following measures were reviewed:  
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1. The Wijma Delivery Expectancy Questionnaire<sup>14</sup> (WDEQ-A)
2. The Fear of Birth scale<sup>15</sup> (FOBS)
3. The Oxford Worries about Labour Scale<sup>16</sup> (OWLS)
4. The Slade-Pais Expectations of Childbirth Scale, Fear subscale<sup>17</sup> (SPECS) –

## Procedure

Ethical approval was obtained from the University of Liverpool (15/NW/0922) and the study was sponsored by University of Liverpool (UoL00177).

Women who were currently experiencing FOC (n=5) were recruited via a clinic run specifically for such difficulties by the consultant midwife (GH) at the Liverpool Women's Hospital NHS Foundation Trust (LWHFT). Women who disclose FOC to their midwife during pregnancy are routinely referred to the clinic where they discuss their fears with the consultant specialist midwife. During the consultation, GH provided information about the study and asked them whether they would be willing to be contacted by the researcher (KB).

Women with low (or no) FOC (n= 5) were recruited primarily via a research midwife at their routine 20-week scan appointment. All participants were asked whether they would like to receive further information from the researcher.

Details of the study were also presented on the LWHFT website and LWHFT social media websites (Twitter, Facebook) to ensure that all pregnant women were given the opportunity to read about the study and were able to contact the researcher

1 directly should they wish to. This was to enable those who may have difficulty  
2 disclosing fears to health professionals to be included.  
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7 The researcher (KB) then contacted women to provide further information about the  
8 aims and purposes of the study. In total 30 women requested further information; 12  
9 women through self-referral having seen information via social media, 7 via referrals  
10 from the consultant midwife (for high fear) and 11 referrals from the research midwife  
11 (for low fear). After initiating willingness for contact, the main reason that women  
12 were not recruited was due to difficulty in making contact.  
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24 On receipt of written consent, the researcher met with the participant at a place of  
25 their preference where they participated in a cognitive interview, reviewing the four  
26 FOC measures (WDEQ-A, OWLS, SPECS, FOBS). Interviews with women were  
27 either conducted at LWHFT (n= 2), in the woman's homes (n= 7) or at the University  
28 of Liverpool (n = 1). No repeat interviews were conducted.  
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39 All participants were introduced to the concept of cognitive interviewing and  
40 specifically the 'thinking out loud' by counting the windows in their home and  
41 verbalising their thoughts as they counted them. Each participant completed the  
42 measures in the same order. The interviews typically lasted around 60 minutes.  
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51 For each FOC measure the following criteria was reviewed. Elements one and two  
52 were reviewed via the cognitive interviews with women. Element three was  
53 examined as a separate process.  
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1. Understanding - Whether the FOC measure was understood by women, and if so, whether the attributed meaning of the item was unambiguous i.e. all women reported a consistent understanding of the term. To further assess understandability, the reading ease for each measure was reviewed with the Flesch reading ease test, to identify the reading level needed to understand the measure. The test rates text on a 100 point scale (and the higher the score the easier it is to read). The public should aim for a Reading Ease score of around 60 or above, meaning that the text should be easily understood by a 13-15 year old.
2. Acceptability - whether the FOC measure is acceptable to women when completing the measure, in terms of its length, presentation and overall impression of the measure.
3. Exploration of content validity - whether the FOC measure has good content validity i.e. the items reflect the full range of domains of fear that women have of childbirth<sup>36</sup>, as identified within a UK sample. To determine this, the dimension, each scale was reviewed by the research team (PS, GH, KB, KS) to identify items addressing each of the 10 key elements for fear of childbirth, as identified by Slade, Balling, Sheen & Houghton<sup>13</sup>. The elements include: 1) Fear of not knowing and not being able to plan for the unpredictable, (2) Fear of harm or stress to the baby, (3) Fear of their inability to cope with the pain, (4) Fear of their body's ability to give birth, (5) Fear of harm to self in labour and postnatally (6) Fear of being 'done' to (7) Fear of not having a voice in decision making (8) Fear of being abandoned and alone (9) Fear of internal loss of control and (10) Terrified of birth and not knowing why.



## Data analysis

The interviews were audio recorded, transcribed ad verbatim, and analysed using thematic analysis<sup>37</sup> to identify (i) general understanding of each item in relation to clarity (this identified whether a single or multiple dimensions emerged within women's responses). This then provided information on the consistency of understanding and (ii) women's perspectives on the acceptability of each item. No field notes were made. NVivo was used to organise the data. Transcripts were not returned to participants for comment and participants did not provide feedback on the findings, although all participants were able to request an overview of findings.

Each stage of analysis was reviewed by the research team in terms of the documented evidence provided. Consensus on the adequacy of each item's clarity of meaning and general acceptability as reported by participants was determined via a series of structured team discussions (PS,KB,KS,GH). Initially, the interview data were analysed in groups of women with low and high fear. There was a high degree of consensus among the two groups but differences, where they existed, are highlighted in the findings.

To examine content validity, all 4 measures were reviewed by the research team comprising of a consultant midwife (GH), consultant clinical psychologist (PS), clinical psychologist (KB) and research psychologist (KS).to explore whether items in each of the scale mapped across to each of the ten key elements of fear of childbirth as identified by Slade et al.<sup>13</sup>.

## Results

## 1. Understanding and clarity of measures

### WDEQ-A

Of the 33 items in the WDEQ-A, women found three items difficult to understand as follows: (1) 'Frightful', as many women with high fear exchanged the word 'fearful' or 'scary':

*"About a two... Just scared... It would be (frightful) for me but I don't know whether it would be for the general public, for everybody. Yeah, I think fearful would be better than frightful."*

(2) 'Desolate', the majority of women did not know what this word meant, and those that did, did not relate it to their pregnancy:

*"That word doesn't mean anything me. I wouldn't use it. To be honest I don't even know what it means."*

and (3) 'As it should be', many of the women did not understand what this question was trying to ask:

*"I don't think I really kind of understand that either? I have to really think about what it means, that is not an easy question to answer, no."*

For a further 7 items women lacked clear understanding due to ambiguity (i.e. the women attributed different meanings to the item) (1) 'Strong', although all women understood the meaning of the word strong, for the high fear group 'strong' could include being either strong mentally or strong physically:

*"so it's like I'm not going to be strong, my body is not going to do what it's supposed to do. So maybe yeah, maybe that is a word that I would use"*

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probably... Not mentally strong enough because I feel that I, you know,  
mentally you just have to adapt to the situation that you are in but physically  
there's nothing you can do about your body is there?"

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Whereas for the low fear group, all women identified it as meaning mentally not  
physically strong:

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"It's like a capacity to cope with it... Yeah, likes it's an endurance test."

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(2) 'Weak', similarly, to strong, women perceived weak to be either physically or  
emotionally weak, with no consensus:

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"Weak, not able to cope with it. That's how I would look at it."

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"Weak is a physical one again. Yeah and that's because I just think of weak  
as a physical not being able to tolerate it."

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(3) 'Independent', this either was interpreted as being independent from other people  
i.e. nobody else going through the labour (independently facing the process):

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"Being able to cope on your own. Because obviously it is you that is going  
through it at the end of the day..."

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or being independent minded to say what you want in labour:

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"So I felt this time, that I have been a little bit independent with speaking out  
and saying 'well actually hang on you know I would like it this way, I would like  
it that way'... I would say independent or in control." Q2

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2 (4) 'Self-confidence', some felt that self-confidence didn't relate to labour and birth  
3  
4 and that it was more about how one perceives their appearance generally:  
5  
6

7 *"I suppose I could read it and understand what it means but I wouldn't say to*  
8 *somebody "oh I felt really self-confident" I think I associate self-confidence*  
9 *more with like, you know the way you look or your personality rather than your*  
10 *ability or doing well in something." Q10*  
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20 whereas others related it to their self-confidence to either get through the process or  
21 ask for help if they needed it during labour:  
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24 *"Self-confidence would probably be about how I feel within myself as a person*  
25 *and maybe I would relate it to more self-confidence to direct and have a say in*  
26 *the process." Q30*  
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34 (5) 'Lose control of myself', this was perceived as a negative question and for some  
35 there was a lack of clarity about whether it refers to an emotional or physical loss of  
36 control:  
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41 *"Lose control like things are going to get so bad that it is a possibility that you*  
42 *would totally lose control of yourself. It's a little bit scary that maybe that that's*  
43 *a possibility" Q3*  
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51 (6) 'Totally as it should be', some women did not understand what this question was  
52 trying to ask:  
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*“I suppose I think straight away as in “that was the way I wanted it to go”. But yeah that is what would spring to mind. That all had gone as I wanted it to go or my birth plan had gone completely out the window.” Q28*

However, for those that did, they related it either to the labour and birth going the way they had planned or the ‘rite of passage’ of a woman to give birth:

*“I can see how it fits with the way I interpreted natural in terms of the whole sort of rites of passage for womanhood, but I would struggle with that and the wording with that question a bit more, I don’t know how to interpret it.” Q30*

(7) ‘Fantasies my child will die during labour’, although everyone understood what this question was trying to ask, for many the word ‘fantasies’ relates to something positive happening and therefore all women felt that this word did not make sense in this context.

*“Yeah, I would say that’s a fair question. I probably say more thoughts. Fantasies kind of suggests something that you... now that I reread it, fantasies is like what I want to happen” Q10*

Therefore, overall 10 items of the 33 items were identified as having limitations in women’s understanding.

## OWLS

In the Oxford Worries about Labour Scale (OWLS), only 1 of the ten items created concerns about understanding and this was only identified by women in the high

1 group (1) 'Not knowing how long labour would take', all of the women in the low  
2 group framed this item as more of a curiosity rather than a fear, but for some women  
3  
4 in the high group the item was associated with the fear of a long labour rather than  
5  
6 the not knowing element indicated in the question.  
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10 *"No not fear, curiosity but not fear"*

### 11 12 13 14 15 **SPECS**

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17 In the Slade-Pais Expectations of Childbirth Scale (SPECS) of the 10 items only one  
18 item was ambiguous for women to understand (1) 'Labour is unknown', many women  
19 did understand this item, however a couple of women found it more difficult to clarify  
20 what it was asking:  
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27 *"Don't really understand what that means. Like the unknown... like you don't*  
28  
29 *know. I'm not sure I would know how to answer that? I would take that out,*  
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31 *that doesn't really say anything to me."*  
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### 36 37 **FOBS**

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39 In terms of the FOBS, no items were difficult to understand. All women found the  
40 words 'calm', 'worried' and 'fear' easy to understand.  
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46 Understanding in terms of reading ease:

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49 The FOBS had the highest Flesch reading ease level (81.9%), followed by the  
50 OWLS (69.1%), and then the WDEQ-A and SPECS both at (66%).  
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## 52 53 54 55 56 **2. Acceptability of measures** 57 58 59 60 61 62 63 64 65

1 Although, overall, most women viewed all four measures positively, there were  
2 limitations with each that challenge their suitability for general use.  
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### 6 *Phraseology*

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9 In terms of acceptability in phraseology many liked the language/phraseology in the  
10 OWLS and felt that it was more colloquial so they could identify with it easily. There  
11 were 2 items in the WDEQ-A and 1 item in the SPECS that raised acceptability  
12 issues for women, although women were clear that their concerns related to the  
13 strength of negativity associated. 'Dangerous' and 'Deserted' from the WDEQ-A,  
14 and 'My body will fail me during labour' from the SPECS were perceived as overly  
15 negative phraseology for women and therefore less acceptable in a measure of FOC  
16 as women felt they might increase fear.  
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29 *['Dangerous', WDEQ] "It's a bit of a strong word I think. I suppose I would go*  
30 *back... not dangerous I wouldn't, but safe maybe. Safe is better*  
31 *maybe...Because if you say dangerous you'd panic wouldn't you? That's a*  
32 *panic word for me really you know? Whereas safe is a little bit more 'oh okay*  
33 *then' but if someone says that that's dangerous then you are thinking 'oh*  
34 *what's happening?' That sort of panic kicks in doesn't it? So, no I would*  
35 *definitely say safe and not dangerous." Q2*  
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50 *['Deserted', WDEQ] "You're going to be in a hospital, in a strange room and*  
51 *then all of a sudden everyone is going to leave you on your own. Deserted is*  
52 *a little bit scary... No, no that's not really come into my mind at all. I wouldn't*  
53 *have that, it's a bit scary." Q3*  
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*['My body will fail me during labour', SPECS] "Ooh I don't like that! It's this one it's the way it is worded. I understand because it is the expectation you have of yourself. And you could easily be frightened of not having the confidence in yourself to achieve what you expect from labour if that makes sense? But it's just really dark to go into that and try to quantify that. It's really full on." Q22*

Further concerns around phraseology in the SPECS included the item 'I will not be able to give birth naturally' as most of the women reported that to 'give birth naturally' would mean a vaginal delivery. They understood the question and could score it; however, several women from the low group felt that the wording made the suggestion that having a cesarean section is 'unnatural' which could potentially upset some women.

Also, some suggested that the phraseology of the items should focus on how a pregnant woman is currently feeling about labour and childbirth rather than how they imagine they will feel in the future, as many found this too complex to rate.

#### *Presentation and ease of use of each measure*

Many felt that the practicality of the OWLS questionnaire made it easier and quicker to answer than the WDEQ-A. The women also liked the layout, as it was less 'busy' with a clear structure. Some women liked the visual analogue of the FOBS however most women preferred the 5-point Likert scale rather than a 4 point scale of the W-DEQ because it allowed them the option to score in the middle. Some women suggested that a Visual Analogue Scale might be a good opening to the measure



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2 (i.e., to be placed at the start of a longer assessment tool), to ease people into the  
3 process or initiate further discussion.  
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7 *The breadth of items included in each measure*  
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10 One of the main reported positive aspects of the WDEQ-A was a perception that it  
11 was a thorough tool which is good to elicit what people are feeling pre-delivery and  
12 captures most of women's fears. However, overall the OWLS was the favoured  
13 questionnaire by the majority of the women due to its perceived relevance. Although  
14 some liked the thoroughness of the WDEQ-A, others felt it was too long and  
15 repetitive and some women felt it was too heavily weighted towards the emotional  
16 rather than physical side of labour. In contrast to the WDEQ-A, some women felt that  
17 the OWLS was too weighted towards the worries about physical aspects of labour  
18 and childbirth rather than the emotional components. Some also felt that the OWLS  
19 and SPECS failed to ask questions about the woman's safety and generally were not  
20 sufficiently detailed and therefore might not capture all of the fears that women might  
21 have around childbirth. Similarly, with the FOBS many women in the high group  
22 identified with the word fear and felt that they could place themselves high on the  
23 fear scale, however the women in the low group felt that the scale did not give  
24 enough detail about what the fears are for women and therefore found it less useful.  
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50 *"But that seems really basic and just having the two words, not everyone's*  
51 *intermediate for calm and worried and no fear and fear is the same. If I placed*  
52 *a line in the middle and someone else did it, it doesn't mean we think the*  
53 *same thing about what that represents? And I wouldn't know where to put that*  
54 *mark"*  
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2 Some suggested that the lack of detail does not allow professionals to understand  
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4 what support the woman needs nor does it challenge the women to think more  
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6 deeply about their fears. Interestingly, for some women with high fear they felt that  
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8 this might communicate to women that professionals are not taking their anxiety  
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10 seriously.  
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16 This suggests that a measure needs to include a mixture of potential psychological  
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18 and emotional worries, and physical concerns, to maximise its acceptability as a  
19  
20 measure of FOC.  
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### 24 25 26 **3. Content validity of each measure** 27

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29 Content validity refers to the extent to which items within a measurement tool  
30  
31 adequately reflect each domain of a construct<sup>36</sup>. Following the previous stages, all  
32  
33 questionnaires were reviewed against the 10 domains identified in Slade et al<sup>13</sup> to  
34  
35 assess content validity. Table 2 shows the mapping process and emissions within  
36  
37 the 4 measures assess against the 10 domains for FOC. All items of each scale  
38  
39 were systematically reviewed against the each of the 10 elements by the research  
40  
41 team experienced in the field: a consultant midwife (GH) two clinical psychologists  
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43 (PS KB) and a research psychologist (KS). This continued until a consensus on each  
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45 item was reached.  
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53 The WDEQ-A mapped onto 7 of the 10 domains but did not include (1) Fear of being  
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55 'done to', (2) Fear of not having a voice in decision making and (3) Generic fear of  
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57 unknown.  
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2 The OWLS mapped on to 4 domains but did not include (1) Fear of harm or stress to  
3 the baby, (2) Fear of harm to self in labour and post-natally, (3) Fear of not having a  
4 voice in decision making (4) Fear of being abandoned/alone, (5) Body's ability to  
5 give birth and (6) Generic fear of unknown.  
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14 The SPECS fear subscale mapped on to 5 domains but did not include (1) Fear of  
15 inability to cope with pain, (2) Fear of harm to self in labour and post-natally, (3) Fear  
16 of not having a voice in decision making (4) Fear of being abandoned/alone and (5)  
17 Losing control. As the full version of the SPECS questionnaire (not just the fear  
18 subscale) was also available this was checked to review whether the missing  
19 domains were present. If the full scale were to show appropriate content validity then  
20 future research could further review its clarity and acceptability. Although there were  
21 items in the full SPECS that did reflect all 10 domains, items for two of the domains  
22 were felt to demonstrate inadequate specificity. The domain "Fear of harm or stress  
23 to the baby" was tentatively covered in the SPECS with the item "I will be worried  
24 about the health of my baby" but the team agreed that this did not cover fears about  
25 injury to the baby or death, which were clearly outlined in the FOC domains. In  
26 addition 'Fear of harm to self in labour and post-natally' was covered in the SPECS  
27 by two items "I worry about trauma to my body" and "My body will hurt during labour"  
28  
29 The team consensus was this might not reflect the level of concern about post-natal  
30 ongoing injuries e.g., fear of impact on sexual relationships and incontinence etc.  
31  
32 The FOBS tentatively mapped onto one domain (1) Generic fear of unknown,  
33 however due to its brevity it did not generally map onto the other domains.  
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1 Good content validity requires a measure to address all relevant domains of a  
2 construct<sup>36</sup>. None of the four main existing measures will ask women about every  
3 element of the FOC construct and therefore is indicative of limited content validity for  
4 measurement of FOC in this small sample of UK women.  
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## 10 **Discussion**

11 In summary, no widely utilised measure of FOC fulfilled requirements for adequate  
12 clarity of understanding and acceptability and (following initial examination) content  
13 validity for the measurement of fear of childbirth in a UK population. Women valued  
14 tools that were worded in a way that was easy to understand, and where items  
15 focused on their current feelings rather than their expectations of giving birth.  
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25 Although women felt that scoring measures using a visual analogue scale (as with  
26 the FOBS) was useful, there was a preference for tools that ask about both physical  
27 and emotional concerns for birth using a 5 point likert scale to enable a neutral  
28 response where appropriate.  
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39 Acceptability and understandability of items within a measure could potentially be  
40 improved via alterations to the wording of certain items (with the permission of  
41 authors). However many of the currently used scales are missing crucial  
42 components for valid measurement of FOC within the UK population. It is clear that  
43 effective tools not only need to consider the content but also the structure and  
44 accessibility of the language for women<sup>6,7</sup>. In addition to issue of content validity this  
45 study substantiates previous studies that suggest that clarity and understandability  
46 can be compromised when measures are translated directly from other languages,  
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1 and this needs to be carefully considered before such measures are routinely  
2 adopted at service level.  
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8 Acceptability of administration also needs consideration and women wanted  
9 adequate coverage without undue length and without all items being framed in a  
10 highly negative way. Whilst the FOBS may be acceptable as a first screening tool it  
11 was not felt to show and indeed did not incorporate sufficiently detailed coverage to  
12 be useful alone. It is also notable that many of the women involved (in both the high  
13 and the low fear group) felt strongly that women should be routinely asked about  
14 their fears around childbirth, which is consistent with the literature<sup>38</sup>. In summary this  
15 work suggests that a new measure of FOC would be beneficial for use with UK  
16 women.  
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### 33 *Limitations*

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35 The study included a small group of women to review the measures, however the  
36 sample size is reflective of recommendations for the cognitive interview  
37 technique<sup>32,33</sup> and consistent alignment in perspectives from both groups highlight  
38 that the current measures do not assess all elements of FOC that are identified  
39 within UK samples<sup>13,38</sup>. It is acknowledged that the findings derive from a small UK  
40 sample and in keeping with the methodological approach saturation was not a  
41 requirement<sup>32</sup>. This is in line with Saunders et al.<sup>40</sup> recommendation that saturation  
42 should only be included where its purpose is conceptually and theoretically  
43 supported. Presence of FOC was inferred via self-report, and therefore  
44 categorisation into high and low fear was led by participants' own perspectives about  
45 giving birth. Given the uncertainty in available cut offs on scales for UK populations  
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1 and the aims of the present study, quantitative assessment of fears to inform  
2 recruitment was not used. Several participants were recruited via hospital social  
3 media and therefore confirmation of high fear by clinical judgement of the specialist  
4 midwives was not available. Extending to this method of recruitment was advised by  
5 our service user organisation because of their awareness of women's difficulty in  
6 disclosure of fear to health professionals. However for all women high fear and low  
7 fear was confirmed by the clinical judgment of an experienced clinical psychologist  
8 (KB). The average age of participants was slightly higher than the UK average (29  
9 years<sup>41</sup>),  
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24 The measures considered were all considered in the same order; this provided a  
25 standardisation of process but could also potentially lead to carryover effects. To  
26 facilitate participation, a pragmatic approach to interview location was adopted based  
27 on the participants' preferences but it is recognised that variations in interview  
28 locations could introduce confounding influences. Participants were in their second  
29 or third trimester; further examination or development of measurement tools to  
30 identify FOC should examine the timing of measurement during pregnancy. This  
31 study does not address other forms of validity such as predictive, discriminant or  
32 construct validity. It should be noted that the limitations identified in existing tools  
33 related specifically to a small sample of UK women, and findings may differ with  
34 women in other countries.  
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## 53 **Conclusion**

54 Findings from the current study highlight limitations in the content validity,  
55 comprehension and utility of existing measurement tools to identify FOC in UK  
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1 women. There is a need either for extensive adaptation of existing measures or the  
2 development of a specific fear of childbirth tool which is clear, demonstrates  
3 appropriate content validity in covering the 10 dimensions identified, and is  
4 acceptable (in terms of presentation and length). This will allow accurate  
5 identification of women who are fearful of childbirth will allow healthcare  
6 professionals to activate an early and effective pathway of care.  
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### 18 **List of abbreviations**

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21 FOBS Fear of Birth Scale  
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24 FOC Fear of Childbirth  
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27 OWLS Oxford Worries about Labour Scale  
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30 SPECS Slade-Pais Expectation of Childbirth Scale  
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33 WDEQ-A Wijma Delivery Expectancy/ Experience Questionnaire Version A  
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## Declarations

- Ethics approval and consent to participate. Ethical approval was obtained from the University of Liverpool (15/NW/0922) and the study was sponsored by University of Liverpool (UoL00177). Informed written consent was obtained from all participants prior to participation.
- Consent for publication. N/A
- Availability of data and materials. The datasets used during the current study are available from the corresponding author on reasonable request
- Competing interests. The authors declare that they have no competing interests.
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- Authors' contributions. Development and design (PS, KS, GH, JB), recruitment and data collection (GH, KB), data analysis (KB), refining data analysis (KB, PS, KS, GH), preparation of manuscript for publication (PS, KB, KS). All authors read and approved the final manuscript.
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FOCUS2\_Table1

Table 1. Demographics of participants

		<b>Low fear</b>		<b>High fear</b>	
		<b>(n=5)</b>		<b>(n=5)</b>	
		<b>Range</b>	<b>Mean</b>	<b>Range</b>	<b>Mean</b>
Age range		32-37	35	29-38	32
Gestation (weeks)		20-24	23		32
		<b>N</b>		<b>N</b>	
Marital Status	Single	0		1	
	Cohabiting/ married	5		4	
Previous children	Primiparous	2		2	
	Multiparous	3		3	

Table 2. Comparison of item content within each scale with the 10 key elements of FOC as identified by Slade et al.<sup>13</sup>

FOC Element	WDEQ-A	OWLS	SPECS	FOBS
1. Fear of not knowing and not being able to plan for the unpredictable	Totally as it should be	Getting to the hospital in time Having a long labour Not knowing how long labour will take Not knowing when I would go into labour	Labour will be complicated	
2. Fear of harm or stress to the baby	Fantasies child will die Fantasies child will be injured		I am worried about the health of my baby	
3. Fear of inability to cope with pain	Pain	Getting effective pain relief Pain and discomfort of labour		
4. Fear of harm to self in labour and post-natally	Safe Dangerous			
5. Fear of being 'done to'		Needing a caesarean Having ventouse or forceps delivery	Labour will be complicated	

Having to be induced

I worry I will need emergency  
surgery

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6. Fear of not having a voice in  
decision making

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7. Fear of being  
abandoned/alone

Lonely  
Deserted  
Abandoned  
Trust

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8. Body's ability to give birth

I will allow my body to  
take control  
Natural

My body will fail me during  
labour

I will not be able to birth naturally

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9. Losing control

Composed

Embarrassment

Panic

I will behave badly

I will totally lose

control of myself

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10. Generic fear of unknown

Labour is unknown

Fear-  
no fear

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