

# Opportunities and challenges for enhancing preconception health in primary care: qualitative study with women from ethnically diverse communities

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## ABSTRACT

**Objective:** There is a growing interest in developing and offering more systematic preconception healthcare. However, it is unclear how this might be regarded by ethnically diverse communities at higher risk of poor maternal and child health outcomes. We sought to explore perceptions about preconception health and care among women from these communities to identify opportunities and challenges for intervention development in primary care.

**Design:** Qualitative study using focus groups and semistructured interviews.

**Setting:** Ethnically diverse and socially disadvantaged community settings of the UK.

**Participants:** 41 women aged 18–45 years, of Pakistani, Indian, Caribbean, African, White and mixed ethnic origin, participating in nine focus groups, half of whom (n=19) had one-to-one follow-up telephone interviews.

**Results:** Women had modest or poor awareness of preconception health issues. They perceived these could be addressed in primary care, particularly if raised within a range of clinically ‘relevant’ consultations, such as for contraception, or when opportune for individuals in their social context. However, challenges for engaging women in preconception care more routinely were underlined. These included little prevailing culture of preparing for pregnancy and the realities of their pregnancies often being unplanned; and, for those planning pregnancy, sensitivity and maintaining secrecy when trying to conceive. A preference for female professionals, engaging men, and enhancing access for younger people or women less disposed to general practice, in educational and other settings were highlighted.

**Conclusions:** Raising preconception health when this has heightened clinical or social resonance for women may hold promise for initiating more systematic intervention. In primary care this could offer greater potential to directly engage those with low awareness or not considering pregnancy, while enlarging opportunity for others who may be seeking to conceive. Promoting ‘preparation for pregnancy’ more

## ARTICLE SUMMARY

### Article focus

- Implementing more routine and comprehensive preconception healthcare offers major opportunity to improve maternal and child health outcomes.
- There is a lack of qualitative evidence from minority communities who might form priorities for targeting.
- This study explored perceptions of women from diverse ethnic backgrounds about preconception health to inform preconception care development in primary care.

### Key messages

- In the absence of a culture of preparing for pregnancy, raising preconception health when this has heightened clinical or social relevance for women may hold promise for initiating more systematic intervention.
- This could include when attending for contraception, difficulty conceiving, treatment or disease review, or other routine health promotion, and use ongoing knowledge of patients’ social and cultural contexts.
- In primary care this could overcome some challenges women identify by offering potential to directly engage those with low awareness or not considering pregnancy, while advancing opportunity for intervention with women who may be trying to conceive but have yet to share this with others.

widely might form part of healthcare and education over the life course. Further intervention development research exploring these possibilities, including their feasibility and acceptability is needed.

## INTRODUCTION

Preconception care involves health promotion to identify and reduce risk factors that might affect future maternal, child and

## ARTICLE SUMMARY

**Strengths and limitations of this study**

- Data were generated with women mostly familiar with each other, reducing artificiality of discussions, and by researchers of gender, and diverse ethnic, faith and language backgrounds shared with participants.
- Data and analysis from group interactions were complemented by one-to-one interviews, and helped refine and validate findings.
- While participants had relevant experiences as mothers, or women of reproductive age, they were considering broader preconception care that is not currently routine healthcare practice.

family health.<sup>1–3</sup> Effective preconception care is likely to involve a range of therapeutic (eg, immunisation) and behavioural (eg, smoking cessation) interventions. While relevant to all those of reproductive age, successfully engaging those at highest risk could help reduce social and ethnic disparities in maternal and child health, and in pregnancy outcomes such as low birth weight and infant mortality. For example, compared with the wider population, still birth, perinatal and infant mortality rates are significantly higher for mothers of African-Caribbean, South Asian and socially deprived backgrounds in the UK.<sup>4</sup> Explanations for such variations are poorly understood, involving interplay of disadvantage, physiological, behavioural and cultural factors.

While there are National Institute for Clinical Excellence (NICE) guidelines outlining specific aspects of preconception care for women with diabetes and for obese women,<sup>5–6</sup> there are no national guidelines for preconception care aimed at the general population in the UK. Preconception care is normally encouraged informally<sup>7</sup> and typically offered opportunistically by the general practitioners (GPs) and others, for example with advice on folic acid use.<sup>8</sup> Interventions for single risk factors, such as folic acid deficiency and alcohol misuse are known to work,<sup>9–10</sup> some having a robust evidence base for cost-effectiveness in improving health outcomes.<sup>11</sup> However, people often have several health and social risk factors impacting major outcomes such as still birth. Globally, there is increasing interest in offering more comprehensive interventions that address individuals often with multiple risks in 'real life', such as obesity, smoking or lack of rubella immunity,<sup>12–15</sup> although it is not yet established, if a more holistic approach can realise the benefits anticipated from single component interventions.

Existing approaches in assessing preconception health more systematically typically involve self-completed questionnaire and health professional review.<sup>16–18</sup> None have been tested in UK primary care, but limited experience of using them, mainly from the USA and the Netherlands<sup>16–17–19</sup> suggest their promise. These approaches have potential to increase women's

knowledge and enable behaviour change, without inducing harm or anxiety.<sup>12–20–21</sup> In these countries, recommendations now advocate primary care delivery of preconception care.<sup>1–3</sup>

While largely supported by professionals,<sup>8–22–23</sup> evidence about whether women really want more preconception care is mixed,<sup>22–25</sup> and its successful implementation in routine health practice has yet to occur. The high number of unplanned pregnancies among women in most countries (approximately 50% of pregnancies in the UK)<sup>26</sup> and lack of knowledge about the aim of preconception counselling<sup>27</sup> are identified barriers for delivery of preconception care. Women who desire it may prefer to receive this in primary care.<sup>21–24–28–29</sup> However, there is a paucity of relevant qualitative evidence, particularly from minority ethnic communities who might form priorities for targeting. In this study, we explored perceptions about preconception health and care among women from diverse ethnic backgrounds. We wished to identify opportunities and challenges for preconception care in primary care in the UK to inform intervention development and implementation.

**METHODS****Data generation**

We recruited and purposefully sampled from pre-existing social groups of women of reproductive age (18–45), such as parent and toddler and faith-based groups, in ethnically diverse and deprived inner city and rural localities of the Midlands, with Indices of Multiple Deprivation in the lowest quintile (most deprived 20%) for the UK.<sup>30</sup> These 'naturally occurring' groups were chosen given that health issues may be routinely discussed and shared by women more familiar with each other. We aimed to involve women of Pakistani, Indian, African-Caribbean and White origin. Community-based groups were approached directly by the researchers or indirectly via a prior contact associated with the group and were provided with information about the study. The explained purpose was to find out what women aged 18–45 think about 'preconception health', which is defined as 'a woman's health before pregnancy'. Recruitment within groups occurred face-to-face by study researchers or with the help of key contacts. Study information included a consent form and was translated where appropriate.

Audio-recorded focus groups were convened at a location and time convenient to participants and each facilitated by two of three field researchers (HT, MB and LCB), all of whom were women, including from Muslim and Punjabi/Urdu speaking Sikh backgrounds, with one moderating the discussion and the other taking notes. Prior to the group discussions, participants completed consent forms and a brief demographic questionnaire. A topic guide was developed from literature review and

two pilot group discussions with GPs and practice nurses, to include:

- ▶ Previous experience of preconception health advice;
- ▶ Awareness of, and attitudes towards preconception health;
- ▶ Views on when and how preconception care might occur;
- ▶ Showing women areas of preconception health assessment (PHA) such as lifestyle, medical/family history, infectious disease and fetal exposure on a draft questionnaire<sup>16 18 19</sup> (see online supplementary appendix 1).

Participants were encouraged to freely discuss their experiences and views, with exploration evolving to accommodate emerging themes in the groups. The PHA questionnaire was introduced half way through the focus groups, preceded by explanation of the purpose of the form and assessment. Participants were invited to fill in the PHA questionnaire at home. All women from the groups were invited to participate in follow-up semi-structured one-to-one telephone interviews, and those who wished to do so were interviewed. These were undertaken to consider themes from the group or areas the individual may not have contributed to during earlier group discussion, for example, because of shyness or being inhibited by the group context. Views on how they found completing the questionnaire were also invited (these are not reported here).

### Data analysis

We analysed data from focus groups and telephone interviews using qualitative research principles.<sup>31</sup> Group discussions were transcribed verbatim, and telephone interviews summarised for pertinent themes. All transcripts were checked against the recording for accuracy, with one group involving spoken Punjabi transcribed and translated by an independent translation service, and rechecked against the original recording by a bilingual researcher for accuracy of translation and equivalence of meaning. Three researchers generating data reviewed all transcripts independently, identifying initial concepts and themes guiding the direction of succeeding interviews until no themes were emerging. Data management and sorting were assisted by NVivo V.9 (QSR) software, and a coding scheme was developed drawing on a priori and emergent themes. Data were analysed using thematic analysis and constant comparison, and the focus of analysis was both the individual and the group.<sup>32</sup> Emerging themes were agreed jointly in parallel discussions with the wider clinical research team. In the following, participants are identified with a code: for example, 5/P3 indicates participant (P) number three in group five; group 5/5 denotes that group 5 had five participants.

### RESULTS

Ultimately, 41 women participated in nine focus groups, lasting about 90 min each, and half of these women (19)

took part in one-to-one semi-structured telephone interviews 1–2 months later, lasting about 30 min each. Most groups were pre-existing social groups (parent and toddler, community or faith centre based, workplace or extended family), though in three not every participant knew each other beforehand. They included those who identified themselves as predominantly African-Caribbean or of mixed ethnicity (three groups with two, five and eight participants, respectively), Pakistani Muslim (two groups with five and four participants, respectively), Indian Punjabi Sikh (one group with five participants, with discussion occurring in English and Punjabi, and cofacilitation by Punjabi speaking researcher) and ‘White’ (three groups with three, four and five participants, respectively). The largely, although not exclusively, homogenous nature of the groups reflected the pre-existing social groups approached and also the locality. For example, two of the groups with ‘White’ participants were from rural county locations. Most women had left formal education at school level, and about half were existing mothers. Sample characteristics are summarised in [table 1](#).

**Table 1** Characteristics of the participants

	Focus groups	Telephone interviews
<b>Number of participants</b>	<b>41</b>	<b>19</b>
Age		
18*–25	18	10
26–35	15	5
36–45	8	4
Ethnicity (Self-defined)		
South Asian	14	6
Pakistani (8)		(3)
Indian (6)		(3)
African–Caribbean	11	3
Caribbean (5)		(3)
African (1)		
Other Black/African/Caribbean (5)		
White	11	8
Mixed	5	2
White and Asian (2)		(1)
White & Black African (1)		(1)
Other mixed (2)		
Highest formal education		
GCSE or equivalent (<16 years)	8	3
A level, General Certificate of Education Advanced Level or equivalent (<18 years)	22	12
Higher education beyond school level	8	3
Educated outside UK	1	
Not indicated	2	1
Pregnant	2	
Mothers (total number of children)	23 (40)	14 (22)

\*One woman aged 17 years reported her age after group participation: data from this participant not reported. GCSE, General Certificate of Secondary Education.

### Preconception health awareness and attitudes

With the exception of avoiding smoking, alcohol and illicit drugs, women's awareness of preconception health was modest or poor. Beyond this, there was little evidence of any received wisdom or prevailing culture of 'preparing for pregnancy'. Rather, many thought a range of risks were relevant *during* rather than before pregnancy. For example, they did not see the need to check immunisation status, medication or family history, rule out infectious disease or take folic acid prior to conception. Younger women were perceived to be less aware of these issues:

I don't think it would have crossed our mind to, sort of, 'hang on we need to read this' [information on preconception health] we were young we didn't really care much or think about children. (5/P3: 26-35, White ethnicity, 2 children)

While some attitudes towards certain health risks reflected the cultural or ethnic background of the participants ("Nobody smokes in the Asian community, so that wouldn't really be an issue." 2/P1: 26-35, Pakistani), it was apparent that women of similar ethnic backgrounds had diverse attitudes as well as practices.

Some women had doubts about the value of reviewing certain health risks, and concerns about causing anxiety unnecessarily (box 1).

However, women appreciated the prospect of being better informed, especially if information was relevant to them as individuals. Some saw the potential of the PHA questionnaire to raise awareness about preconception health, and others highlighted differences in concerns and information needs according to locality:

(...) if you were thinking of having a baby and you saw that women's preconception health [questionnaire] (...) you'd at least have access to some information (...) to think about. (4/P4: 26-35, White ethnicity, 2 children)

#### Box 1 Concerns regarding preconception health review

5/P2 *Some things are important but then some things are just a bit*

5/P4 *Over the top.*

5/P2 *Nanny state, you know, making people paranoid and worried and*

5/P3 *What are the infectious diseases before you're pregnant?*

5/P1 *Infectious diseases full stop probably but, yeah.*

5/P3 *The Government trying to frighten us again. (...)*

5/P2 *Sometimes yeah it gets to the point where you just think, oh*

5/P1 *Well then it feels a bit like there's too many, then it's like oh forget it. (...) And I think that's why you remember smoking and alcohol because they're sort of drummed home yeah and you just think oh forget it, it'll be alright. (5/P4 & 5/P3: Yeah)*

5/P2 *We're still here today, people have been having kids and babies for thousands and thousands of years without all this.*

(Group 5/5: 18-35, White ethnicity, all mothers)

I'm planning to have another one next summer and I'll need help quitting smoking, I know I've got to do that. And I've got to find out about what all that palaver is with lambs. I don't understand the lambs. (5/P2: 26-35, White ethnicity, 1 child, rural setting)

Women without children, or with only one child, appeared more attracted to the idea of preconception care. Mothers with more children spoke of the experience of previous successful pregnancies and also of having less time to consider their own health, fill in health assessment forms, or go to appointments with their GPs. While existing mothers seemed slightly better informed about preconception health risks, some wished they had been more aware of them prior to their first pregnancy, and had them addressed, including those with significant risks such as lack of rubella immunity:

I think it would have helped me with the rubella because even though my pregnancy was planned and I'd been to see my GP, they never picked up on that I was needing it (...) so I went my whole pregnancy worrying that I was going to get it. (4/P2: 18-25, White ethnicity, 1 child)

(...) when I (...) went to see a family planning nurse, I wish that I had come out hearing 'folic acid' and 'get fit', because it's just impossible afterwards and I don't think anybody tells you about (...) how much your body's going to stretch (...). (4/P4: 26-35, White ethnicity, 2 children)

### Preconception health opportunities in primary care

Women were generally positive about the prospect of greater preconception care from their GP or practice nurse, speaking of continuity of positive relationships, including familiarity, respect and trust in their practices. They discussed when preconception health might be appropriately raised, from their perspective, in general practice. This included consultations for contraception, infertility or difficulty conceiving, cervical smears, disease or treatment review and other health checks. While more general invitations from their practice were not suggested, some women were comfortable with being approached opportunistically with preconception health information at other times. They supported a more proactive approach tailored to knowledge of an individual's circumstances and social or cultural context. Women of South Asian background, for example, indicated their pregnancies may not be strictly 'planned' but there was a heightened cultural expectation of pregnancy after marriage that might present opportunity to introduce preconception health (box 2).

Some women, mainly those of South Asian background, were clear that they would prefer talking about preconception health issues with female health professionals:

2/P3 *No, it would have to be a female GP or a practice nurse, it wouldn't be a male GP.*

**Box 2** Opportunities to consider preconception health in general practice

5/P1 *You could do when you're going for contraception, that's good actually, that would be a good way*

5/P2 *Most girls do go, don't they.*

5/P4 *They do want to go because they don't want to get pregnant do they, so yeah.*

(Group 5/5: 18–35, White ethnicity, all mothers)

*Maybe if ... they are trying to have a baby for months and they realise they have to check...if they have any problems, I think at that point you should fill in a form [PHA questionnaire] like this.*

(3/P3: 18–25, African ethnicity, 1 child)

*It could be an option maybe if you go for your smear check-up, if you're given it then, in case you can fill it out then or you can post it back so then it's done at that time whether you think about it or not (...).*

(8/P5: 26–35, Black/African/Caribbean ethnicity)

*I think if GPs were to have these [PHA questionnaires] and could hand them out as and when, I don't think they should wait either to be approached by someone for it, it should automatically be offered.*

(4/P1: 18–25, White ethnicity, 1 child)

*We go to doctors when we're ill, but actually what advice we are getting from the doctors about how we potentially prevent other illnesses or other things that maybe happening to us? (...) I think a bit of planning through your general practitioner may actually help you long term kind of thing.*

(9/P6: 36–45, Caribbean ethnicity)

1/P1 *Well I mean the GP would know if you're married or single or whatever (...) If the GP said to me 'would you mind filling in this, you know for when you are ready to start a family?' I'd say 'yeah, no problem.' (...)*

1/P4 *(...) because we are thinking about our culture, if you are married then obviously you're going to be having babies. So maybe (...) let's get her to fill in this form...That would be a good idea.*

(Group 1/5: 26–45, Indian ethnicity, all mothers)

2/P4 *It wouldn't. And that's not even to do with only—I don't think even my religious beliefs would come into it—it's just me personally. (Group 2/5: 26-35, Pakistani & Indian ethnicity, no children, 1 pregnant)*

But then I think, at the same time, if I was planning on having a child, I would probably feel a little uncomfortable speaking to a man. (6/P3: 18-25, Pakistani ethnicity)

In addition, several younger participants had experience of doctors as unapproachable or being difficult to relate to. Family doctors were seen as problematic with fear that confidential information may be passed on to other members of the family:

Because my GP is my family's doctor and you must hear that all the time because I knew when my cousins needed injections for our holiday and they knew, do you know what I mean, he's that type of doctor, where we all knew everyone's business! [laughter] Which he's not

supposed to do but yeah, it's part of life. (8/P4: 18-25, Caribbean ethnicity, 1 child)

No but then also with my experience, that I know lots of those girls are smokers but when they have appointment with their midwife, in their record they says I don't smoke, yeah? (...) and a lot of them don't tell their GPs either that they smoke (...). In the past, the reason people lost trust in their GPs or some other professionals (...) information did leak out and it did go back to the parents. (6/P1: 36-45, Pakistani ethnicity, 2 children)

In these contexts, some women advocated that opportunities for preconception health information be more widely available in the community, in particular in schools and sexual health or 'family planning' clinics. Some saw the latter primary care settings as more welcoming than general practices, where it was routinely easier to see female staff and remain anonymous. Many women knew teenage mothers with unhealthy lifestyles, and felt their learning about health promotion at school might be improved to include positive relevance to preconception health:

Yeah, as soon as they start sex education, if it's any good. Because it will start making them think, as well, that this is about a baby. Rather than, because a lot of people in their teens get pregnant, they don't plan their pregnancy, but if they know everything about pregnancy they might consider it more as well. (3/P2: 18-25, White ethnicity, 1 child)

So perhaps if it went in the younger age and we were talking more about growing (...) how plants grow, you know, how human beings grow and what we need to keep us healthy and something that's (...) altered all the way through each key stage, you know, age appropriate, but something that's just there from the very beginning on the curriculum. (7/P1: 36-45, White/Black African ethnicity, 1 child)

**Challenges for promoting preconception care**

Women highlighted their common experience of pregnancies being unplanned and that thinking about their health and lifestyle only arose after conception (box 3). They perceived 'preconception health' would feel similarly abstract to others, and not appear relevant in women's day-to-day lives. No respondents had experienced broader preconception assessment or care from any health professional. Only a few mothers had actively sought preconception information or advice from their GPs, prompted by fertility concerns or in order to receive a prescription for folic acid (ie, at no cost if eligible for free prescription).

For some mothers who had 'planned' their pregnancies, the phase between active planning and conception was indistinct, for example, because they had conceived sooner than expected, affecting their ability to communicate their plans to others prior to pregnancy. In particular, women spoke of the sometimes sensitive or

**Box 3** Relevant only after conception

*I was 19, my daughter wasn't planned (...) so I never thought of discussing anything like this. I was just like OK I'm pregnant, oh!* (5/P3: 26–35, White ethnicity, 2 children)  
*I don't think I've ever known anyone that's really said 'right, I'm going to have a baby now, this is what I'm going to go and do,' it's always kind of happened 'whoops, but I'm OK with it'* (8/P2: 26–35, Caribbean ethnicity)  
*The majority of people—honestly, I'm not joking [laughter]—are unaware of these things (...). Honestly, if they were trying to get pregnant they wouldn't even think about these things. Really, lack of education or lack of knowledge or whatever it is, they wouldn't. (...) If I was married and if I was trying for a baby I wouldn't bloody think of any of those.* (2/P2: 26–35, Indian ethnicity)

secretive period between planning pregnancy and actual conception, affecting their willingness to tell others, including health professionals about their plans, and thus the open consideration of preconception health (box 4).

Women of South Asian background highlighted that stigma associated with infertility was a further reason for keeping pregnancy plans secret. Faith, or fatalism, was sometimes mentioned as an important reason for not approaching healthcare professionals even if experiencing fertility problems.

**Preconception health as part of wider health promotion**

The possibilities for addressing preconception health as part of wider health promotion arose in some group discussions, with the terms 'women's health' or 'pre-pregnancy health' suggested as alternatives. They felt preconception health could be promoted more routinely in a positive way as relevant to women not immediately planning pregnancy, particularly as some communities may sanction 'conception' only in marriage:

It's the way that you frame it as well, I think if you frame it as it's another smear test health screening check-up thing, but (...) I know we're going just on women,

**Box 4** Difficulty being open about pregnancy planning

*And also, like if you're planning, you do not want anybody, everybody else to know that you're planning, because that's a lot of pressure on you.* (8/P5: 26–35, Black/African/Caribbean ethnicity)  
*I wouldn't go to a GP, family or friends [for preconception health advice]. (...) I wouldn't feel comfortable going to anybody.* (2/P2: 26–35, Indian ethnicity)  
*I don't think I would have spoken to anyone about these issues if I was trying to conceive. (...) I'd just thought that it's just one of those things that 'if it's going to happen, it's going to happen'.* (2/P5: 26–35, Pakistani ethnicity)

because that's the way I see it, but being able to bear children is such a blessing, it like makes us like miracle people (...). (6/P2: 26-35, Pakistani ethnicity)

This resonated with other women's suggestions to introduce preconception health in to health promotion offered to women when they reach reproductive age enabling "free guidance and advice" (4/P4) and assurance that "you're OK and everything's still going tickety boo" (5/P3):

(...) maybe there should be a routine health check that just every person who reaches a certain age (...) I don't know 16/17, I know some people it might miss, still, that's a general health thing but incorporates that [preconception health questionnaire] if that becomes appropriate. (...) it could be women's health assessment, couldn't it? (4/P4: 26-35, White ethnicity, 2 children)

Women felt that consideration of 'preconception health' should encompass men more directly. They recognised preconception issues were "applicable to them as well" (7/P1) and "their health [being] just as important" (6/P1). For example, they raised the relevance of their partners' history, and that in some communities health behaviours such as alcohol consumption or smoking, could be more directly relevant to men than women, presenting opportunities to engage men more (box 5).

**DISCUSSION**  
**Summary**

Women in this study had limited awareness of preconception health but perceived offering preconception care more routinely in general practice as appropriate, particularly if raised within a range of clinically 'relevant' consultations or when opportune for individuals in their social context. However, there were challenges for engaging women in preconception care more routinely: lack of a prevailing culture of 'preparing for pregnancy',

**Box 5** Preconception health relevant for men as well

*2/P2 My husband does drink occasionally and he's not very healthy and ... he's got problems with a history, like his dad's side and his mum's—of illnesses. I think maybe on his side we would think about these things but not on mine. Folic acid, that's the woman only, but certain things—the men would probably be more... in our culture, anyway. Because the men drink alcohol, and they are the ones that—if they were to smoke—it's more likely to be the men.*  
*2/P5 Generally, when we think about conceiving, we think about ourselves, we don't think about...*  
*2/P4 (...) I think the men are very isolated in the whole aftermath, kind of thing (...) Once you've fallen pregnant it's just more about you and the baby.*  
 (Group2/5: 26–35, Pakistani (Muslim) and Indian (Sikh) ethnicity, one pregnant)

the realities of pregnancies often being unplanned, and, for those planning pregnancy, of sensitivity and secrecy about trying to conceive. Enhancing access in other settings, including for younger people and women less disposed to seeing their GP or male practitioners, education in schools, and for men, were suggested as part of integration with wider health promotion.

### Strengths and limitations

This study offers a first qualitative exploration of perceptions about preconception health among those from ethnically diverse and socially deprived communities, including those at higher risk of poor maternal and child health outcomes in the UK. The findings may not be typical of other women, and must be interpreted with regard to the sample described. However, the study benefits from data generated with women mostly familiar with each other, potentially reducing artificiality of discussions, and by researchers of gender, and diverse ethnic, faith and language backgrounds shared with participants.<sup>33</sup> Some groups were smaller than intended, with fewer women than arranged able to attend, which may have reduced variety of input, but not depth of discussions. These were included as participants had convened, and still enabled relevant data to be obtained from 'hard-to-reach' community contexts. Data from group interactions were further complemented by one-to-one interviews, enabled participants to express themselves without potential constraints of the group, and helped refine and validate findings.<sup>34</sup>

While participants had relevant experiences as mothers or women of reproductive age, we recognise that they were considering broader preconception care that is not currently routine. Although we included women who had been pregnant as teenagers, study ethics approval limited inclusion to those aged over 18 years. Further research with younger teenagers and the perspectives of men on preconception health are still needed.

### Comparison with existing literature

This study adds to limited existing evidence in the UK from a survey with a better educated sample in London with 40% of women reporting interest in preconception care in general practice.<sup>22</sup> Women in the current study took a broader perspective on when this might occur and be appropriate, highlighting particular opportunities and challenges for engaging women. Work in other countries, some with disadvantaged populations,<sup>14 35-37</sup> has similarly found women may have some awareness of, and similar attitudes towards, optimising health prior to conception, but have gaps in knowledge about maternal and fetal health risks.<sup>35 38</sup> For example, even though few women fully comply with pre-pregnancy messages,<sup>10 25 39</sup> most studies report awareness of the need to avoid smoking, alcohol and drugs during pregnancy, which corresponds with our results.

Our respondents highlighted pregnancies being 'unplanned', and not thinking about preconception health or lifestyle unless already pregnant, as problematic for anticipating and being receptive to preconception care. Similar challenges have been recognised in the USA and Australia,<sup>25 35 38</sup> and by health professionals.<sup>8</sup> In addition, women who already have children may perceive that they know enough for preconception care to be less necessary,<sup>25</sup> and this was echoed by mothers in the current study.

Our findings suggest that even if pregnancy is 'planned', discussing or seeking preconception care may be hampered by women's ability and willingness to be open about their aspirations or plans with others, including health professionals.<sup>40</sup> This may be compounded by stigma associated with infertility<sup>41</sup> and this was highlighted by women in our sample. Cultural or religious taboos surrounding premarital relationships<sup>42</sup> may potentially deter some women. However, it is important to recognise the same cultural importance attached to fertility and family health after marriage was referred to in this study as a positive opportunity to facilitate greater engagement with preconception health for individuals.

Women elsewhere have also felt preconception health should be promoted more in 'family planning clinics',<sup>43</sup> though this may not appeal to others.<sup>42</sup> Improving younger people's awareness and knowledge about preconception health during their education, as suggested by women here, forms part of guidance and some school curricula in the USA.<sup>1</sup>

### Conclusions and implications for practice

This study not only highlights challenges but also opportunities for preconception health promotion. The relatively positive attitudes found here may not equate to actual engagement. However, this study suggests that raising preconception health more proactively may most promisingly occur when this assumes heightened individual relevance for women. This could include clinical contexts such as when attending for contraception, difficulty conceiving, treatment or disease review, or as part of other routine health promotion such as cervical screening. Informational aids such as preconception health questionnaire may help at these times. Primary care practitioners may be well placed to capitalise on these opportunities given ongoing knowledge not only of patients' medical histories and healthcare but also of their social and cultural contexts, such as new relationships.

Initiating the offer of preconception health intervention at these points also speaks of the challenges women identify. First, and arguably of particular importance for those from more deprived backgrounds, it has potential to engage those with low awareness or not considering or planning pregnancy. This group may be less receptive to more conventional health promotion invitation, for example, if offered routinely to all women of reproductive age. Second, it may advance opportunity to offer intervention to women who may be trying to conceive,

but have yet to share this with others. Given time constraints in health encounters, initial offers could be followed by more dedicated preconception health review, for example with nurse practitioners.

Facilitating a culture of 'preparing for pregnancy' as part of life, and making preconception care more attractive to women and their partners, even if they are not planning pregnancy, requires further social marketing.<sup>44</sup> In addition to primary care, parallel approaches in raising awareness of preconception health might use differing windows of opportunity, as part of healthcare and education over the life course, in wider settings. Further intervention development research and evaluation,<sup>45</sup> exploring this range of possibilities, including feasibility and acceptability with those implementing them, is needed.

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