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Promoting empowerment or intensifying reproductive burden? Accounts of preconception health adjustments among women trying to conceive

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ABSTRACT

Objective: Women's preconception health is increasingly viewed as playing a critical role in pregnancy and birth outcomes and is becoming an increasing focus of public health messages within the UK and internationally. However, little is known about how women respond to and are impacted by preconception health messages as they try to conceive a baby.

Methods: Reflexive Thematic Analysis was used to analyse 193 responses from women in the UK to a qualitative survey on experiences of trying to conceive. As part of the survey women were asked to reflect on their engagement with preconception health practices.

Results: Three themes were generated: 1) Being fit for conception; 2) Preconception health and emotional labour, and 3) Interrogating preconception health expectations.

Conclusion: The findings demonstrate that whilst engagement with preconception health changes was empowering for some, more troubling implications included: heightened self-surveillance, stress, risks to wellbeing, and feelings of responsibility for poor outcomes. This demonstrates the importance of considering the unintended consequences of preconception health messaging in the shape of increased 'reproductive burden'. Furthermore, future development of preconception health policy and practice must also consider women's access to psychological support when trying to conceive.

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Introduction

Assertions about the impact of preconception health and the role of preconception care have a long history (Waggoner, 2017), and over the past two decades there has been a renewed public health focus on the critical role preconception health is said to play in pregnancy and birth outcomes (Stephenson et al., 2018). The most recent UK policy contribution in this area emphasises the importance of women engaging in health promoting behaviours such as healthy eating, smoking cessation, achieving

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and maintaining a healthy weight, and managing consumption of alcohol or substance misuse, in order to control a range of identified risk factors and ensure women are 'fit for pregnancy' (Public Health England, 2018, p.9). These guidelines are consistent with approaches internationally (e.g. Health Council of the Netherlands, 2007; Johnson et al., 2006; RACGP, 2012), and the World Health Organisation has highlighted the importance of preconception health from a global perspective (World Health Organisation, 2013). However, as yet, there is little understanding of how and to what extent women planning pregnancies engage with and make sense of this advice. Set against the backdrop of an increasing focus on preconception health, the aim of this research is to consider women's accounts of trying to conceive.

Establishing a singular definition of the preconception period is difficult. Whilst it has often been defined as the three months preceding pregnancy, this only becomes knowable once a pregnancy is confirmed (Stephenson et al., 2018). Currently within UK policy, the preconception period is defined through two different perspectives (Public Health England, 2018). From the 'population perspective', it applies to anybody of childbearing age—who could become pregnant or cause a pregnancy, irrespective of intention and thereby considering unplanned pregnancies. From the 'individual perspective', the preconception period begins with the intention to plan a pregnancy and, since the majority of women will conceive within six months (Gnoth et al., 2003), the 'weeks to months' before pregnancy are highlighted as important for health behaviour change. However, for around 20% of women the preconception period will last more than six months, with 8% of those potentially still trying to conceive at a year (Gnoth et al., 2003); a significant amount of time to make health adaptations. Here, we intend to consider the implications of preconception health advice from an 'individual perspective' by considering the impact upon women trying to conceive.

Preconception health agendas reflect a concern to try to reduce the incidence of poor maternal and child outcomes through managing risks to a 'future fetus' (Wagonner, 2017) or 'potential child' (Budds, 2021), as well as a wider ambition to reduce health inequalities and improve intergenerational health (Public Health England, 2018). They may, in part, be a response to research demonstrating limited success of antenatal interventions in achieving this (Stephenson et al., 2018; Waggoner, 2017). The drive is underpinned by biomedical theories such as the Developmental Origins of Health and Disease (DOHaD) theory (Godfrey et al., 2010), which emphasises the role of preconceptional parental exposure in contributing to the intergenerational disease risk of future offspring. Moreover, the 'Fetal Origins' hypothesis (Barker, 1995), which defines the early intrauterine environment of the foetus as a 'critical period', with the capacity to determine short- and long-term health, underpins the importance placed on good preconception health. Since women are unable to confirm a pregnancy in the early weeks and a significant proportion of pregnancies are unplanned, there are concerns that women may then be unknowingly jeopardising the health of their foetus by continuing to engage in 'risky' behaviours.

As a consequence, it has been argued, good preconception health becomes an increasingly important form of health citizenship; women are positioned as not only responsible for immediate maternal and child health outcomes relating to an upcoming or future pregnancy, but for the health of future generations through self-policing

of their health behaviours and lifestyles (Budds, 2021; Lupton, 2012). Whilst, in the UK context, wider determinants, such as housing and the environment are identified as relevant to a preconception care agenda (Public Health England, 2018), the primary focus is on 'modifiable risk factors', often positioned as 'lifestyle choices'. This reflects a neoliberal focus on health management and governance of risk (Lupton, 2013), but also contemporary constructions of 'good mothers' as risk managers (Wolf, 2011). Yet, in this instance, women are being exhorted to 'parent before conception' (King, 2016), and engage in 'anticipatory motherhood' (Waggoner, 2017) to self-regulate and manage risks 'as if' they are pregnant, meaning potentially significant implications for the choices and autonomy of women of reproductive age.

In the face of these potential implications, it is important to examine the evidence base for the benefits of preconception health interventions. Waggoner (2017) has suggested that whilst preconception interventions may confer some individual benefits for some groups of women (e.g. those with chronic health conditions), the evidence does not currently justify an indiscriminate approach for all women of reproductive age. Elsewhere, the evidence base for preconception health interventions in relation to DOHaD theory has been critiqued on the basis of methodological limitations and its focus on maternal factors only (see Pentecost & Meloni, 2020 for a critique). A gendered approach to preconception health has been observed elsewhere (Almeling & Waggoner, 2013) and reflects Daniels (2006) notion of 'reproductive masculinity' whereby men are assumed to be secondary to women in reproduction. In relation to preconception health, research in the US has demonstrated that women are perceived as more responsible than men for making changes and protecting the health of future offspring (Mello et al., 2019), owing to factors such as their biological connection to the foetus, lack of knowledge regarding the role of men's preconception health, and discourses of good motherhood (Mello et al., 2020).

Research has shown that women who find it difficult to follow health proscriptions during pregnancy can experience anxiety, guilt and shame for flouting them (Neiterman & Fox, 2017; Parker & Pausé, 2019; Wigginton & LaFrance, 2016), as well as external moral judgement (e.g. Wigginton & Lee, 2013). As such, it is important to understand how women currently trying to conceive cope with managing proscriptions given some key differences in their circumstances. Firstly, they are doing so to manage risk *in anticipation of* pregnancy; as opposed to a confirmed pregnancy and baby. Secondly, the time to conception, during which they are expected to follow such proscriptions, is unknowable rather than specified, potentially lasting several months or even years. Whilst existing research with women undergoing fertility treatment demonstrates high levels of psychological distress in these women (Cousineau & Domar, 2007), stress may be experienced by those without known fertility issues (Jones et al., 2015), with research suggesting anxiety increases over time to conception (Sweeny et al., 2015). Finally, in comparison to pregnancy, there is no dedicated health care provision or psychological support for women trying to conceive. In the UK, most women will not be referred for fertility support until they have been trying to conceive for 12 months or longer (possibly earlier for women over 36), thus predominantly navigating this stressful time and 'rollercoaster of uncertainty' independently (Sweeny et al., 2015, p123). Meanwhile, research identifies considerable levels of inaccuracy in open access

online information on trying to conceive (Kedzior et al., 2019). Previous studies have investigated the extent to which women engage with preconception health advice using survey methods (e.g. Chivers et al., 2020; McDougall et al., 2021); however, qualitative research exploring how women make sense of preconception health messaging and how it impacts their practices, subjectivities and support needs when trying to conceive are lacking, justifying the need for this study.

Whilst in the UK context, the focus of preconception health policy lies with the importance of managing risks and improving health outcomes for mother and baby, in popular discourse, there is additional emphasis on the value of preconception health for optimising fertility (Budds, 2021). A number of popular science books extol the virtues of preconception health for improving chances of natural and assisted conception (e.g. Balen & Dugdale, 2021) and preventing miscarriage (Fett, 2019). Whilst these texts are well-intentioned and the ambition may be to empower women, there may be some unintended consequences of presenting the idea that women have some control over their fertility *via* preconception health and lifestyle changes. For example, it has been argued that women may delay help-seeking for fertility issues, believing instead that they might be able to manage their own fertility struggles through health adaptations (Budds, 2021) or otherwise may blame themselves for miscarriage based on their preconception diet or lifestyle (Waggonner, 2017). As such, it is important to understand the implications of the focus on women's preconception health for women planning a pregnancy and to highlight the potential unintended consequences of this messaging. Such an approach reflects a neoliberal health agenda, individualising what has been termed 'reproductive burden' (Waggoner, 2017, p.133) when there remain a number of ways in which fertility is beyond a woman's (or man's) control. With this in mind, the research question for this study is: (How) do women navigate preconception health expectations and what are the potential implications for their experiences of trying to conceive?

Methods

Study design

This study involved a qualitative survey designed to elicit women's accounts of the preconception period. A qualitative survey was chosen because it offers privacy and anonymity which is useful when researching such a sensitive topic; this method also enabled us to reach a larger number of participants and therefore a wider range of accounts compared to established qualitative methods such as interviews (Terry et al., 2017). The survey was developed by KB based on knowledge of the preconception health and fertility literature. Once drafted the survey was reviewed by CM. The questions were open ended and designed to elicit as much detail from women as they were comfortable to share. The questions covered topics such as: reproductive history; approach to pregnancy planning; methods used to improve chances of conception; health behaviours during the preconception period; and emotional experience of pregnancy planning. For this paper there will be a focus on data in response to questions around health (see Table 1).

Table 1. Questions regarding health and lifestyle..

Have you made any changes to your diet since you started considering a pregnancy? Please explain why/why not.
Have you altered how much alcohol you consume since you started considering a pregnancy? Please explain why/why not.
Have you made any adjustments to how much you smoke since you started considering a pregnancy? Please explain why/why not.
Have you made any attempt to alter your weight since you started considering a pregnancy? Please explain why/why not.
Thinking of your answers to the above, has it been difficult to maintain these changes? Please explain why/why not. It may be helpful to give specific examples.
What, if any, has been the impact of making these changes on your life? Please explain your feelings.
Can you describe anything you have done/are doing to improve your chances of pregnancy.
Have you had any worries or concerns about becoming pregnant that relate to your health or lifestyle? Please explain why/why not.

NB these questions were taken from the version of the questionnaire targeted at women who identified as currently trying to conceive and the wording was adjusted accordingly for other groups.

Data collection

Ethical approval for the study was obtained from the first author's institution. The survey questions were transferred into the online survey software, Qualtrics. To recruit participants, the link to the survey was shared *via* an X (formerly Twitter) page created for the project and Facebook advertising which targeted women of reproductive age. All respondents were required to give informed consent through Qualtrics prior to completing the questionnaire.

Participants

We recruited two groups of women: 1) women who self-defined as currently trying to conceive, and 2) pregnant women. Therefore, for the purposes of this study we define the first group of women as in the 'preconception period' and they were asked to reflect on their current experiences. Women who were pregnant at the time of the survey were asked to reflect on the time leading up to their pregnancy - that is, their preconception period. The pregnant women were also asked to state whether they defined their pregnancy as 'planned' or 'unplanned', since it was expected that accounts would differ on this basis. Women with 'unplanned pregnancies' would not have been aware they were in the preconception period and therefore have not been included in this paper, which focuses on health adaptations in anticipation of pregnancy. Survey questions were adjusted for relevance based on which of the three categories the women fitted into.

197 women completed the survey during June 2020: 62 women trying to conceive (TTC group), and 135 pregnant women. 126 women described their pregnancy as planned and nine described their pregnancy as unplanned. The planned pregnant sample were further broken down to describe women who described themselves as 'actively planning' their pregnancy (herein PGAP group) ($n = 104$) and those who described a more ambivalent approach (PGA group) ($n = 22$). Of the pregnant sample, most women (70%) conceived in six months or fewer. In the group of women trying to conceive, 44% had been trying for more than six months. Five women have been excluded from this analysis owing to poor quality data on the questions relating to health and lifestyle. Further demographic information relating to the remaining sample

can be found in Table 2. It is worth noting the proportion of women in the sample who had previous experience of miscarriage (27% pregnant group and 34% TTC group), is higher than the average population prevalence of women who have had one previous miscarriage (10.8%) (Quenby et al., 2021) and so the survey may have attracted women with this experience. As with the majority of research in this area, the sample lacks gender diversity, with all participants identifying as cis gender women. Therefore, throughout the manuscript when we use the term 'women' we are referring to cis gender women. The survey was launched during the coronavirus pandemic in the UK and whilst it included a question about the impact of the pandemic on experiences of trying to conceive, the resulting data did not concern health changes in the pre-conception period and so this data is not included within the analysis here.

Data analysis

The data were analysed using Reflexive Thematic Analysis (Braun & Clarke, 2006, 2019). Initially the data were read multiple times to develop familiarity with the content. The data were systematically coded once, followed by a second iteration where codes were further refined. At this stage, codes were collated to develop themes. From here, these candidate themes were grouped with other related themes to generate over-arching themes that represented women's accounts of and responses to pre-conception health changes when trying to conceive. Finally, the themes were further refined by collating the data relevant to each theme and reviewing it to ensure the data corresponded well to the themes identified. At this stage some changes were made to the structure of the final themes.

Table 2. Participant demographics.

	Pregnancy planned ($n = 123$)	TTC ($n = 61$)
Age ($n = 184$)		
20-24	6	5
25-29	27	17
30-34	57	24
35-39	26	12
40+	7	3
Sexuality		
Heterosexual	109	53
Bisexual	11	6
Lesbian	1	1
Other (Asexual; Pansexual)	2 (Pansexual; Asexual)	1 (Pansexual)
Ethnicity		
Asian Muslim	2	
Black		1
British Muslim		1
White; White British	108	55
Indian	1	
Jewish; Jewish non practising	3	
Latina	1	
Mixed Race	4	4
White Other	4	
Class		
Unsure/undefined	15	6
Working class	28	11
Lower middle class	4	1
Middle class	75	43
Upper-middle class	1	

All authors come from a perspective whereby importance is placed upon upholding women's choices, autonomy, and wellbeing in relation to reproduction, recognising that these are constrained by social, cultural, and institutional expectations and we highlight such instances in this analysis (e.g. instances where women are expected to lose weight before IVF treatment). This perspective has also inevitably impacted the focus of the analysis in terms of revealing the unintended consequences and challenges that arose for women in relation to preconception health advice. In recognition of this, we took care to also attend to and acknowledge where women reported the beneficial impacts of their engagement with the recommendations.

Findings

Following the analysis, three overarching themes were identified: 1) 'Being fit for conception'; 2) 'Preconception health and emotional labour, and 3) Interrogating preconception health expectations. Each theme comprised two subthemes (see Figure 1).

Theme 1: Being 'fit' for conception

Preconception health changes were often constructed as a means of becoming fitter and healthier for conception. This theme included two subthemes: 1) Optimising fertility and, 2) Risk management, where some women outlined the steps they were taking to adjust their health and lifestyle in the interests of a *potential* baby.

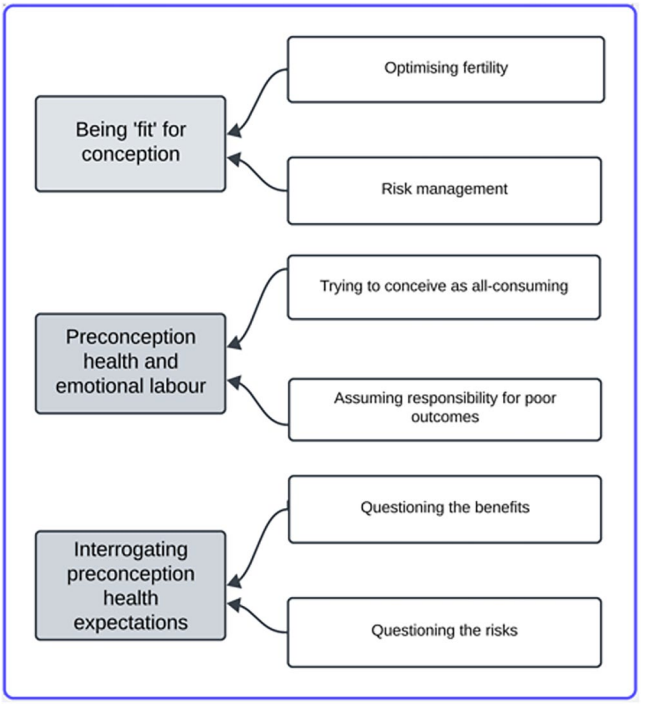

Figure 1. Thematic map of themes and sub-themes developed.

Optimising fertility

The majority of women described making at least one change to their health and lifestyle when trying to conceive—often in line with recommendations around diet, smoking, alcohol consumption and weight management. Women also commonly reported taking preconception vitamins and supplements. Whilst women did not always explain the motivations for such changes, they were often linked to improved fertility and chances of successfully conceiving.

> *I started Slimming World to help me lose weight as I knew the statistics for IVF were better with a healthier BMI* (Bethany, PGAP, 18 months TTC)

> *I tried to eat healthily and include more variety of vitamins and minerals daily from food such as bananas for potassium, sunflower seeds for vitamin e and extra calcium. I also tried to ensure my partner ate a variety of fruit and veg too. I did this as all the internet websites gave this information to support conceiving.* (Stacey, PGAP, 2 months TTC)

Preconception health changes were seen by some as a means of enhancing chances of becoming pregnant. For example, women discussed what they saw as the importance of establishing a healthy weight or a healthy diet—which for some meant generally making healthier eating choices, and for others meant targeting foods understood to contain certain vitamins or minerals that would enhance fertility.

Other respondents highlighted the way in which making preconception health changes enabled them to feel they were taking some control over their fertility.

> *By making the changes I feel more in control and as if I am actively doing something to get closer to my goal and improve my chances of success* (Leona, TTC, 3 years)

> *I felt more in control of the situation and that I was doing all I could to give us the best chance.* (Diana, PGAP, 2 months TTC)

Here women describe how preconception health changes enabled a sense of empowerment. Leona describes 'actively doing something to get closer to my goal' and Diana, similarly, 'doing all I could', phrases which highlight agency and motherhood as the ultimate goal. These participants linked the changes made to taking control over, and thus improving their chances of, conception.

A sense of control was also apparent in other accounts where women described plans to modify preconception changes over time in the event they didn't conceive.

> *I was beginning to get frustrated with how long our conception journey has been taking and decided to make a complete overhaul with my diet. While I was already eating a balanced diet, I have become much stricter and trying to follow the fertility diet. I have also convinced my husband to do so* (Miriam, TTC, 1 year, 10ms)

In such accounts it was apparent that some women viewed preconception health changes as a way of regulating their fertility and considered that in the event they struggled to conceive, by imposing further restrictions on their health and lifestyle choices—and in fewer cases—the choices of male partners - they could potentially improve their chances of success going forward. This indicates how preconception health changes are perhaps viewed as part of an ongoing 'formula' for successful conception and on that basis there was a strong motivation to adhere to them.

It hasn't been too hard, as my ultimate goal is to become a mother and I am willing to do whatever possible to get there. (Leona, TTC, 3 years)

In response to a question about whether it had been difficult to maintain preconception health changes, some described being motivated to make sacrifices, on the understanding that doing so would ultimately enable them to reach their goal to become pregnant. However, albeit in a minority of accounts, women also highlighted potential problems with assuming a link between preconception health behaviours and fertility:

It's difficult to maintain caffeine reduction, and difficult to avoid alcohol. I find this has been particularly challenging after months of not becoming pregnant; it feels 'unfair' when knowing I'm doing everything I 'should' be, and it's hard not to become complacent. Also has been challenging when hearing of friends who have become pregnant while still drinking alcohol etc. (Jennifer, TTC, 20 months).

It's hard when you feel you are doing everything right and other people don't and just look at their partners to fall pregnant. There seems to be this assumption that it is easy and under our control (Aubery, TTC, 6 months)

These women reported that the changes they made had no impact on their fertility. In the accounts above, both Jennifer and Aubery express a sense that their struggle to conceive is 'unjust' since they are 'doing everything right' (Aubery) and 'everything they should be' (Jennifer), highlighting a potential illusion of control regarding preconception health and fertility. Here their disappointment seems compounded by observing others who have not made the same sacrifices yet seemingly became pregnant without issue.

In addition to taking control over and improving fertility, other women talked about making changes to prepare their body for pregnancy and give their baby the best start, albeit this motivation applied to a smaller number of women.

No particular impact other than peace of mind that giving my body and baby best chance (Carmen, PGAP, TTC 2.5 months)

It's for the health of my children and I don't find it difficult to put my future children first. That's what a mother does! (Eva, TTC, 4 months)

The accounts here are in line with discourses of 'good mothers' as those who prioritise the health of their offspring, with similar arguments for the importance of preconception health identified elsewhere (Mello et al., 2020). However, what is striking here, is that these women are acting in recognition of this in relation to babies who are not yet conceived—or as Eva puts it, her 'future children'. This reflects observations that parenting is increasingly being extended backwards (Lee et al., 2010), but in this case not only out of concerns to reduce risk, but to optimise the health of the future baby, with Carmen considering that their behaviours will give their future children the 'best chance'.

It is worth noting that some of the women who did not make adjustments or made them in some areas and not others, would highlight that their health and or lifestyle was already in line with what was expected - thereby already being 'fit for conception'. This functioned to justify lack of engagement with preconception health practices. Other explanations included being 'ambivalent' about pregnancy

or getting pregnant 'too quickly' to make changes amongst the pregnant group, a few of which considered they might have made changes had conception taken longer.

In contrast, a few women also reported health professionals 'gatekeeping' their fertility by making preconception health changes a prerequisite for support:

> *The first GP I spoke to about getting my coil removed refused to take it out, because he wanted me to 'lose 2 stone first'* (Judy, TTC 3 months)

> *I felt hopeless. The only way that we could have any fertility investigations was by me losing weight, which felt like a lot of pressure.* (Rosie, PGAP, TTC 2 years)

Thus, in these cases, instead of using preconception health practices to optimise and or take control over fertility, preconception health changes were experienced as mandatory; they would only receive support once perceived as 'fit for conception'.

PCH as risk management

This second subtheme shows how women's discussions of making preconception health and lifestyle changes involved managing risks - either to a possible pregnancy, or a potential baby.

> *I have also cut down to one caffeinated drink per day to reduce the risk of miscarriage if I did conceive* (Aubery, TTC, 6 months)

> *I stopped drinking alcohol for 1 month prior to TTC to avoid any fetal exposure to alcohol prior to a positive pregnancy test* (Erin, PGAP, TTC 1 month)

These women position themselves as having some control over risks to the pregnancy and the foetus through regulation of preconception health. They report behaviour change prior to pregnancy to reduce risks *in the event* they conceived, thus engaging in *anticipatory* risk management. Indeed, Erin highlights how uncertainties over pregnancy status could be a motivator for making changes.

Women largely described reducing or cutting out altogether 'risky' substances—mostly alcohol, sometimes caffeine and, less commonly, certain foods. A few women described taking more drastic measures to manage risk:

> *I only use organic skincare/cosmetics and makeup, and I barely wear any makeup anymore. I've replaced all our household cleaning products with organic and unscented varieties and use baking soda and vinegar for cleaning. I've replaced our non-stick pans with stainless steel ones. We never buy tinned food, and barely ever consume food or drinks in plastic containers (only when we have a 'treat meal' takeaway once or twice a month).* (Renee, TTC 4 years)

Here, Renee describes making adjustments which extend beyond the public health recommendations, by managing exposure to potentially toxic substances she understands may negatively impact fertility. Her shift in footing from 'I' to 'we', might also infer that this risk management applies to her male partner. Since Renee had been trying to conceive for 4 years her account perhaps reflects a concern to 'do all she can' at this stage to take control over the process and improve the possible outcome.

Women commonly reported putting risk-management strategies in place when it came to alcohol consumption.

> *I only drink alcohol on one day per month which is the day I get my period so I know there is no chance of pregnancy. I know that alcohol can negatively affect egg quality, and so implantation rates, and I don't want to do anything that could have an adverse impact* (Eva, TTC, 4 months)

Rather than abstaining altogether, some women described careful management of alcohol consumption, relaxing self-imposed restrictions when they perceived the risks to be low. Motivations for this included safeguarding fertility but also for the protection of a possible pregnancy or foetus. This strategy was quite common in the data, perhaps reflecting the importance for women of continuing to access things they enjoy as part of their social lives, whilst trying to conceive.

Theme 2 – Preconception health and emotional labour

Many women highlighted positive impacts of preconception health changes on either their physical or psychological health and wellbeing. Physical benefits included feeling healthier, fitter or having improved sleep, whilst psychological benefits cited were improved wellbeing or feelings of self-esteem. Others remarked that they felt that the impact on their lives was minimal, particularly where they felt the changes they had made were minor. However, for a significant minority of women, accounts also highlighted more troubling ways in which adaptations to health and lifestyle could increase emotional labour when trying to conceive; forming two subthemes. The first related to the process of trying to conceive becoming 'all consuming', and the second highlighted the potential for women to take responsibility for poor outcomes.

Trying to conceive as all-consuming

For some of these women, a result of navigating preconception health changes was that they became preoccupied with the process of trying to conceive.

> *I think it creates a sense of guilt when I do drink alcohol or have an extra coffee. I also feel it makes it hard not to constantly be thinking about pregnancy, and fretting about not becoming pregnant, because it means you have to scrutinize everyday actions*. (Jennifer, TTC, 20 months)

> *It felt positive at first, but then added stress as I felt I had to do everything at once and be 'perfect' in order to conceive. I am now focusing on doing things for myself rather than for the benefit of fertility* (Allie, TTC, 2 years, 4 months)

For example, Jennifer recounts the way in which preconception health changes encouraged her to 'constantly' evaluate her behaviour, highlighting that through a focus on preconception health, the process of trying to conceive becomes continually salient where previously mundane actions become a site of self-surveillance. Jennifer was one of the few participants to highlight the gendered nature of these expectations and describes them as 'draining' and as contributing to feelings of 'guilt' when she breaches them, demonstrating the potentially significant implications for women's daily lives and psychological wellbeing. In response to these implications some women, such as Allie, described prioritising wellbeing over changes to improve fertility. Others seemed to acknowledge this as a risk and spoke of the importance of not putting

too much pressure on themselves in relation to making changes and 'striking a balance'.

Other respondents highlighted the difficulty of maintaining these changes and the consequences for their wellbeing:

> *Maintaining reduction in caffeine and alcohol when I am not pregnant is extremely difficult, because I have experienced recurrent pregnancy loss. This means that missing out on things I enjoy when it doesn't seem to make any difference to the success of my pregnancy is extremely difficult and feels almost punishing* (Lillian, TTC, 4 years)

> *The not drinking is tough because it's sociable and relaxing. It makes me feel miserable when I'm not drinking but also not pregnant.* (Tricia, TTC, 3 months)

> *I found it difficult to reduce alcohol consumption, the stress of taking longer to get pregnant than usual led me to drink alcohol as a stress reliever* (Gabby, PGAP, TTC 7 months)

Lillian describes continuing to make the changes as 'punishing'. Similarly, Tricia recounts feeling 'miserable' when abstaining from alcohol, since it obstructs her ability to socialise and relax. These accounts reveal the significant implications of giving up things they enjoy—for both their everyday lives and their mental health, particularly since, as both women highlight, they are not yet pregnant—and, for Lillian, don't seem to be improving their chances of pregnancy. Other women such as Gabby highlighted that stress and anxiety brought on by trying to conceive led them to use food or alcohol as a stress reliever and therefore, arguably, adherence to changes in the face of these struggles would compound their distress.

A significant minority of participants also described difficulties relating to maintaining changes in social settings or that additional pressure could come from social and relational contexts –highlighting how the expectation to make health changes in the preconception period may impact many areas of women's lives. This was most commonly in relation to alcohol consumption, and in fewer cases dietary changes or smoking cessation.

> *I stopped completely for one month, but after our miscarriage I started drinking again at minimal levels as it was becoming difficult to continue making excuses for family and friends* (Rowan, PGAP, TTC 3 months)

> *Only impact was that friends/family would assume I was already pregnant when I turned down alcoholic drinks. Due to having difficulties to conceive, this was hard to hear and have to make excuses constantly* (Elisa, PGAP, TTC 2.5 years)

A proportion of these women found that abstaining from alcohol in social settings, would lead others to speculate that they were either trying to conceive, or indeed that they were already pregnant. This was difficult, perhaps particularly following baby loss (e.g. Rowan), or when struggling to conceive (e.g. Elisa). Women faced having to make excuses for their lack of social alcohol consumption, or in Rowan's case, continue to drink alcohol at low levels to avoid conjecture regarding her pregnancy status. A few other women reported avoiding social situations where they anticipated alcohol would be consumed; concealing abstinence or socialising only when not 'at risk' of pregnancy. As well as avoiding speculation, these solutions enabled women to sidestep the emotional labour and distress prompted by questions about alcohol abstinence.

Assuming responsibility for poor outcomes

A further troubling implication for wellbeing related to women's perceptions they could be culpable for poor outcomes.

> *I think the pressure I put on myself to improve my diet made me feel worse because when I failed to eat healthily and then my period came I would blame myself and start thinking how I might have conceived if only I had eaten 'better'* (Olive, PGAP, 11 months TTC)

Olive blames her slips of engagement with preconception health changes for her inability to get pregnant. She contemplates that the changes she made to her diet compounded her distress because she felt responsible and that the outcome could have been different 'if only I had eaten better'. Olive's account demonstrates the harm that can come from the notion that women have control over their fertility through preconception health changes. Whilst this narrative enabled some women to feel empowered, it can leave others open to feeling responsible for not doing 'enough' to maximise chances of pregnancy.

Similarly, this participant positioned themselves as potentially accountable for baby loss.

> *I don't feel like cutting out caffeine and alcohol itself makes any real change to my life, but the psychological burden of running through all the things that have happened in my pregnancy journey every time I think about having a cup of coffee or glass of wine is extremely difficult to manage* (Lillian, TTC, 4 years)

Similar to the accounts above, it is clear how a focus on preconception health may encourage self-surveillance. For Lillian, this is coupled with reflections on the possible consequences of allowing herself a coffee or a glass of wine, set against her history of recurrent miscarriage. Similarly, Hazel reports fearing the consequences of not adhering to preconception health behaviours:

> *I had done this when planning previous pregnancies after a loss (cutting out alcohol, cutting down in sugar, avoiding soft cheese, cured meats etc) but it affected my mental health. I was living as if I was pregnant when I wasn't and felt my life was on hold. I was very scared of eating or drinking the wrong thing and causing another miscarriage.* (Hazel, PGAP, 9 months)

Hazel recounts that preconception health behaviours had been a previous feature of pregnancy planning for her, but that she has since abandoned those efforts. Hazel describes serious implications for her mental health, in part owing to a concern that there could be a direct link between her diet and the possibility of miscarriage.

Whilst, fortunately, these troubling accounts related to a small number of women in our sample, they corroborate the narrative presented earlier, that for some preconception health behaviours are inextricably linked to both fertility and pregnancy outcomes, such as baby loss. As such, women may position themselves as responsible for avoiding poor outcomes as well as accountable when they do occur.

Theme 3 – Interrogating preconception health expectations

This final theme includes two subthemes, where a small number of women firstly questioned the benefits of preconception health changes, and secondly the risks presented within preconception health messaging.

Questioning the benefits

As highlighted within this paper so far, dominant narratives linked preconception health changes to improving fertility and risk management. However, amongst the respondents there were a few women who questioned these links.

> *I used to diet on and off before trying to conceive to maintain my weight, but I stopped any diets as it felt wrong to deprive my body of food during that time.* (Veronica, PGAP, 4-5months TTC)

> *It can be difficult to keep alcohol and caffeine intakes low when you don't know whether or not it's helping and at any given moment you don't know whether or not you're pregnant – it's a bit demotivating* (Melissa, TTC, 7 weeks)

> *…if I knew it would definitely make a difference then I would consider it, but I'm unhappy enough not getting pregnant without taking away my chocolate and wine* (Aalliya, TTC, 1 year)

Here, Veronica critiques the idea that weight loss would be of benefit—suggesting that restricting food intake when trying to conceive could instead be counterproductive. Both Melissa and Aalliya highlighted the unknowns around the benefits of preconception health changes as a barrier to implementation. Given these uncertainties and the potential for further distress, Aaliyah questions whether the changes are ultimately worth the sacrifices. Other respondents described directly experiencing the changes as futile - they did not seem to improve chances of conception, and therefore self-imposed restrictions were abandoned.

A few women queried the benefits of adhering to preconception health guidance, in relation to some of the uncertainties inherent within the process of trying to conceive.

> *It is also hard to stick to not drinking when you consider that you could not conceive for months anyway – therefore alcohol consumption could be irrelevant* (Devon, TTC, 1 month)

> *After losing the first pregnancy, I felt that I wanted to give any future pregnancies a better chance, but also found it hard to commit to drastic lifestyle changes for something that might not happen, or might not persist* (Angie, PGA, 2 months TTC)

Both Devon and Angie highlight that the unpredictability of the process of trying to conceive, made it difficult to commit to preconception health changes, particularly in relation to the length of time it may take. Angie also questions the extent to which preconception health behaviours are useful given uncertainties around fecundity 'something that might not happen', and risk of baby loss 'might not persist'.

Questioning the risks

A small number of participants also questioned the extent to which risk management is necessary during the preconception period.

> *If/when I become pregnant I will then follow current guidance on foods to avoid etc but until then I will carry on as normal. As far as I'm concerned the risks of certain foods are so minimal that it's unnecessary to stop eating them before a pregnancy is even confirmed!* (Madison, TTC, 3 weeks)

> *I haven't completely abstained from alcohol. I think the impact of very low level drinking is minimal and it makes me feel more like an adult and a person in my own right to have a small glass of wine with a meal* (Kylie, PGAP, 2 months TTC)

Madison and Kylie challenge the notion that eating certain foods or drinking low levels of alcohol is 'risky', with direct challenges such as these rare in the data set. Meanwhile, others positioned the preconception period as a last opportunity to enjoy things that are 'forbidden' in pregnancy, framing pregnancy as the time that necessitates strict risk management. Interestingly, for Kylie, continuing to drink alcohol at low levels was constructed as being important for her sense of autonomy and identity that is not tied to pregnancy planning.

Meanwhile, Hazel was the only participant in the sample to question the rationale behind preconception health advice, given what she sees as the relatively limited risk:

> *I also don't feel women are trusted with information about their own and their babies' health. The risk factor seems quite small with certain foods, for example, but I don't feel women are trusted with information about the level of risk.* (Hazel, PGAP, 9 months TTC)

Here Hazel implies that balanced or transparent information on the risks is not made available to women owing to perceptions that they cannot be relied upon to make informed decisions that are in the best interests of themselves and their foetus. This is a criticism that has previously been levelled at paternalistic approaches to women's risk management in relation to alcohol consumption during pregnancy (Gavaghan, 2009) and so it is interesting to see if reflected here, albeit an anomaly within the data set. Later in her contribution Hazel also questioned the evidence base for preconception health advice—again a rare challenge to the need for risk management within the preconception period. This questioning of the evidence underpinning health messages has however been reflected in other work on women's experience of pregnancy risk communication, alongside the implications for women's trust of wider advice given, when they have grounds for scepticism of information already received (Blaylock et al., 2022).

Discussion

Given the increase in focus on preconception health in UK and international policy (e.g. Health Council of the Netherlands, 2007; Johnson et al., 2006; RACGP, 2012), this paper has explored women's accounts of health adaptations whilst trying to conceive. We identified three themes within the analysis which highlighted women's perceptions of the role of preconception health in being 'fit for conception' through improvements to fertility and risk management, and contributing to the emotional labour of trying to conceive. A less dominant theme highlighted the way in which women challenged the importance of preconception health and the extent of associated risks.

Within the first theme, a key observation was that for some women the motivation for making preconception health changes was to improve their fertility. The idea you can control fertility through diet and 'lifestyle' has been identified as a key discourse in popular media regarding preconception health (Budds, 2021) and this paper contributes to our understanding of how this neoliberal narrative may manifest in relation to women's pregnancy planning. The findings suggest that preconception health changes empowered some, giving them a sense of control over their fertility. Moreover, these women highlighted a role for preconception health in achieving their ultimate 'goal'—motherhood, which reflects pronatalist thinking - motherhood as central to

womanhood (Russo, 1976) and the feminine accomplishment of gender (West & Zimmerman, 1987). Yet, their accounts also echoed longstanding constructions of 'good mothers' since these women discussed the importance of making sacrifices, being patient, and enduring difficulties in order to achieve that goal (e.g. Brown et al., 1997). Other women felt frustration at continuing to struggle despite making similar changes and 'doing everything right', thus demonstrating the pitfalls of this neoliberal discourse. Indeed, given that only one third of fertility issues are explained by factors relating to women only (Cousineau & Domar, 2007), but also that the evidence on the relationship between all aspects of 'lifestyle', diet and fertility or pregnancy outcome is not definitive (e.g. Gaskins and Chavarro, 2018; Muffone et al., 2022; Slocum et al., 2022), a concern is that women may develop an *illusion of control* over fertility.

It is possible that women may not seek help promptly if they deem fertility as within their control. Some respondents in this study described adapting preconception health changes over time in response to lack of success as a way of improving chances of pregnancy—albeit we concede that it may not have been obvious as part of the survey whether they were doing this *in addition to* seeking formal fertility support. This extends research elsewhere that demonstrates lifestyle changes are perceived as important by men and women struggling with infertility (Hanna et al., 2018; Hawkins et al., 2014). Whilst women seeking or having undergone IVF in our sample were a minority, some talked about diet and 'lifestyle' changes as essential to access treatment (e.g. owing to NHS eligibility criteria in the UK) or that they were recommended by their clinic. Others linked the relatively smaller chance of success, financial and psychological toll of IVF to the need to make changes to 'improve the odds' which may indicate a more salient role for preconception health changes for those undergoing IVF. However, our findings suggest that this is a feature of accounts from women trying to conceive more broadly, including those without fertility issues, suggesting the neoliberal narrative that women can modify fertility with lifestyle adaptations and the toll of 'reproductive burden' (Waggoner, 2017, p. 133) may be more widespread.

This finding is also of interest because in the UK the focus of public health messaging in the preconception period is largely on managing risks to future offspring as opposed to improving fertility (Public Health England, 2018). Women less frequently discussed the role of preconception health changes in managing risks both to fertility, but also as a function of health citizenship—managing risks to the (future) pregnancy and (future) unborn baby. For those who did, this involved regulation of diet, smoking, caffeine, and alcohol consumption, but for a minority of women this involved going beyond the standard advice and involved more restrictive risk management around exposure to potentially toxic substances. Some women who reflected that they did not follow advice and manage risks could experience anxiety and guilt - as in the case of women who are pregnant (Roberts & Nuru-Jeter, 2010). Moreover, whilst this applied to a minority of women, of significant concern are women's reports of self-blame in the event of fertility struggles or poor outcomes, such as miscarriage since, in many cases, a single cause for fertility issues and or baby loss is undeterminable or the cause may be multifactorial and so the idea that women should blame themselves is not constructive.

Other women described strategic risk management techniques—particularly around alcohol consumption—that enabled them to balance the risks by consuming alcohol

when the risks were perceived to be low. This finding could demonstrate the importance of maintaining a healthy social life and an identity beyond 'anticipatory motherhood' (Waggoner, 2017) and suggests some renegotiation or challenge of the idea that the needs of the (not yet conceived) foetus should be prioritised over the mother. This is an important consideration with respect to preconception health messaging, particularly since time to conception can be highly variable, and the evidence in support of abstinence of alcohol during pregnancy is lacking (Lowe & Lee, 2010).

The findings also demonstrate that whilst many women intended to make changes, health behaviour change in the preconception period is not an uncomplicated 'choice' and that these decisions should not be divorced from context. For instance, whilst some women may have wanted to reduce alcohol consumption, rejecting alcohol in a social setting could cause speculation about, and subsequently a need to explain, reproductive intentions. Such speculation may be particularly difficult for women struggling to conceive or who have experienced baby loss.

The findings highlighted further unintended consequences of preconception health expectations for increased emotional labour and women's wellbeing. Previous research on women's attitudes towards preconception health in Australia highlighted the stress and anxiety experienced by some women during the preconception period (Khan et al., 2019). Extending this limited scholarship, these findings highlight the expectation to make preconception health changes as a potential source of stress for some women. A consequence of self-surveillance - having to scrutinise previously mundane decisions or actions, meant the process of trying to conceive became all-consuming for some women. This is consistent with literature which highlights that infertility can become a focal point for many couples (Cousineau & Domar, 2007), yet with a broader range of participants, this study suggests a diagnosis of infertility may not be necessary to experience this. We might suggest therefore, that in the case of some women, preconception health changes could cause more harm than good. Stress, for example, has been associated with longer time to pregnancy and infertility (Lynch et al., 2014). This indicates the importance of considering women's access to psychological support when trying to conceive within any future development of policy and practice in this area.

In conclusion, together these findings demonstrate how, through a focus on preconception health, some women are increasingly taking on reproductive burden (Waggoner, 2017), positioning themselves as responsible for reproductive outcomes by managing risks, and capitalising on perceived benefits. Whilst some considered the benefits of feeling more empowered, Ruhl (1999) has argued that assigning responsibility to women in such a way fails to acknowledge the complexity and lack of control women have in relation to risk. The consequences of this increasing responsibilisation are concerning and highlight the importance of clear, evidence-based information around risks in the preconception period, particularly given that thus far the evidence base around the benefits of preconception health interventions is not conclusive (Stephenson et al., 2018; Waggoner, 2017).

Whilst this study has contributed to our understanding of how women navigate health changes in the preconception period, it is not without limitations. As can be the case with qualitative surveys (Terry et al., 2017) the depth of the data was variable and could range from single words and short sentences to fuller paragraphs. Where

accounts were not expanded upon, it was not possible to probe this further with the participants, inhibiting full understanding. Additionally, women's accounts were captured at one timepoint—and, since some responses indicated that engagement with preconception health changes might change over time to conception, future work might benefit from taking a longitudinal approach as well as generating more in-depth insight through interviews. Furthermore, the participant base was very broad which meant that it could be quite heterogenous in terms of time to conception, experience of complications (e.g. pregnancy loss); and use of IVF. Whilst this was our intention in order to additionally capture the accounts of women who fall through the gaps in terms of healthcare access, there was some evidence to suggest that women with previous miscarriage were over-represented in the sample and therefore the survey may have attracted women with this experience. Future research would benefit from doing further work on this sub-sample of women who, as this research suggests, might be more impacted by the messages around preconception health as they may become bound up with anxiety and guilt relating to pregnancy loss. Future work would also benefit from focusing on the views and experiences of ethnic minority women, who were underrepresented in this research.

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Data availability statement

The data that support the findings of this study are openly available in Open Science Framework: DOI 10.17605/OSF.IO/QV2W9.

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