



Urban young women's preferences for intervention strategies to promote physical and mental health preconception: A Healthy Life Trajectories Initiative (HeLTI)

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ABSTRACT

This study aimed to qualitatively investigate young women's preferences for preconception intervention strategies to promote physical and mental health in a rapidly transitioning, urban setting. Four semi-structured focus group discussions were conducted with young women (n = 29, 18–24 years old) from Soweto, South Africa. Qualitative data were thematically analysed. Two main themes were identified: 1) challenges and needs of intervention beneficiaries; and 2) preferences for intervention strategies (content and delivery). The challenges participants mentioned could be classified as those relating to social pressure, identity, and socio-economic circumstances. Mental health support appeared to be a greater need than physical health, and this featured in their preferences for intervention content, although a number of physical health topics were also mentioned (healthy eating and contraception). Participants had mixed preferences for intervention materials, ranging from printed to electronic and mobile resources. Their preferences for intervention activities ranged from educational sessions, to fun and interactive practical activities, and activities they could take home. Community health workers (CHWs) were the preferred agent of delivery for interventions, though participants emphasised the importance of CHWs having appropriate interpersonal skills and own life experience. Some women preferred one-on-one sessions with a CHW, while others preferred group sessions. While recognising the value of family sessions, young women were less enthusiastic about this approach. These findings provide valuable formative data for developing effective interventions to optimise young women's preconception health in urban Africa. These contextual realities should be acknowledged when addressing key physical and mental health issues facing young women.

1. Introduction

South Africa is undergoing rapid epidemiological and nutrition transition (Abrahams et al., 2011) (Steyn et al., 2012), with non-communicable diseases impacting low-income urban populations the most (Mayosi et al., 2009). Soweto, South Africa (SA) is one such urban setting where young women are frequently consuming a diet of excess calories and poor nutritional value (Sedibe et al., 2014, 2018; Wrottesley et al., 2017). Although young women in Soweto have been reported to be sufficiently physically active, their time spent sitting is high, which is putting them at higher risk of metabolic conditions (Micklesfield et al., 2017; Prioreshi et al., 2017). Mental health, specifically anxiety and depression, is also a concern for young women in Soweto (Redinger et al., 2018), as well as in other similar settings in SA (van Heyningen et al., 2017, 2018). These risks have implications for the preconception health of young women in these settings, since the health of a woman at conception is particularly important (Fleming et al., 2018), and has implications for her health during pregnancy and

that of her child (Barker et al., 2018; Stephenson et al., 2018).

Although the importance of preconception health is being increasingly acknowledged (Lang et al., 2018; Mason et al., 2014), no preconception interventions have been implemented in South Africa; most have been developed and implemented in high-income countries, particularly the United States (Brown et al., 2017). These involve education on a range of physical and mental health issues, lifestyle behaviour change, and micronutrient supplementation; using a variety of delivery strategies, from media to electronic resources, and group sessions (Brown et al., 2017). Although the effects of these interventions have generally been positive, these interventions have had a somewhat narrow focus (Brown et al., 2017). Furthermore, evidence for the applicability of these interventions in low- and middle-income countries (LMICs) is limited, although it has been argued that the health and social benefits of preconception interventions in LMICs could be particularly impactful (Mason et al., 2014). One such preconception intervention has been developed for young women in Pakistan, where a community-based intervention is focussing on life skills education and

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micronutrient supplementation (Baxter et al., 2018). In Malaysia, a community-based preconception behaviour change intervention is also being implemented with young couples, with a particular emphasis on diabetes prevention (Skau et al., 2016).

To respond to the need for preconception interventions in LMICs, the Healthy Lifestyle Trajectory Initiative (HeLTI) was initiated in SA (Soweto), Canada, China and India in 2016. Soweto is a large urban area lining the mining belt in Johannesburg, South Africa, with a mixture of low- to middle-income, and formal as well as informal housing. According to the most recent national census (2011), Soweto has a population of just over 1.27 million people, with a population density of 6357 people per km² (Statistics South Africa, 2012). In Soweto, a third of women have their first child by the time they are 19 years old (National Department of Health et al., 2017).

HeLTI aims to develop and evaluate an integrated continuum of care intervention (4-phases) starting preconception and extending through pregnancy, infancy and childhood, to optimise women's physical and mental health, and reduce childhood obesity and the risk for non-communicable disease, as well as to improve child development. Preferences for intervention strategies to promote physical and mental health preconception need to be considered alongside the evidence supporting the need for intervention, in order to investigate the feasibility and acceptability of potential intervention strategies, as well as the factors that could influence the implementation of these strategies (Craig et al., 2008). The aim of this study was therefore to explore young women's preferences for intervention strategies to promote physical and mental health to inform the development of preconception interventions.

2. Methods

2.1. Research design and participant recruitment

Twenty-nine women aged between 18 and 24 years participated in this qualitative study, and were recruited using snowball sampling. This age group matches the target age group for the HeLTI trial. Women in the target age group who were part of previous studies in the MRC/Wits DPHRU were approached to participate in a focus group discussion (FGD), initially with flyers, and followed up telephonically. These women were then asked to suggest other women from Soweto whom they thought would be willing to participate, and these women were contacted telephonically. Inclusion criteria were: women living in Soweto, aged between 18 and 24 years, without a child/children, not pregnant at the time of recruitment, and who consented to participate in a FGD.

2.2. Data collection

Four semi-structured FGDs, each with 6–9 participants, were conducted in a private room at the research unit at Chris Hani Baragwanath Academic Hospital. The FGDs were conducted in the first half of 2018 by two multilingual research assistants and lasted between 2 and 2.5 h. A semi-structured FGD guide was used as it provided flexibility of responses during the discussions, and included questions about the living context in Soweto, health, diet, obesity, and general family life (full FGD guide provided as Supplementary Table 1). Participants were then asked about their perceptions of a community-based intervention delivered by community health workers to young women, their families, and their peers. Questions were also asked about intervention delivery methods, dose and delivery agent; as well as intervention content, materials and activities. The FGDs were conducted in English with flexibility of using vernacular languages. Each focus group interview was recorded and transcribed verbatim, with translations done where necessary. All transcripts were checked against the recordings to verify accuracy and credibility and small changes were made where necessary. All participants received reimbursement for transport to the

research facility.

2.3. Data analysis

Data were thematically analysed using both inductive and deductive approaches (Braun and Clarke, 2006). The discussion guide formed the basis of an initial thematic framework, and this was further developed to encompass two main themes: 1) the challenges and needs of those who would be the main beneficiaries of the proposed intervention for young women in Soweto; 2) beneficiaries' preferences for intervention strategies, which was divided into two sub-themes: intervention content and intervention delivery preferences. The first theme was largely derived inductively from participants' responses, whereas the second theme was linked more strongly to the questions within the discussion guide. After the initial stage of familiarisation with the data, codes were generated based on these themes. The next step involved searching for themes in the transcripts, and continuously reviewing and refining themes. Once coded sections of text were summarised for each theme and sub-theme, illustrative quotes for each theme and sub-theme were extracted.

2.4. Data credibility and trustworthiness

With regards to issues of data credibility and trustworthiness in qualitative research, there has been a move away from universal criteria, and towards criteria for judging qualitative inquiry that can be applied to different qualitative studies (Sparkes and Smith, 2009). Tracy (2010) has suggested criteria of qualitative quality that can be adapted according to a study's goals and methods, and the authors have attempted to meet these criteria:

2.4.1. A worthy topic

The literature presented in the Introduction makes a strong case for the significant of preconception health, and the need to conduct appropriate formative work for the planning of preconception health interventions in SA. Such interventions are timely in SA, and relevant to the health issues being faced by SA women.

2.4.2. Rich rigour

The study used appropriate sampling, data collection and analysis methods; all authors were able to critique the interpretation and presentation of the findings.

2.4.3. Sincerity

The authors have been transparent in their description of the methods, and the limitations and strengths of the study.

2.4.4. Credibility

This paper presents in-depth descriptions of the themes, while providing concrete detail through the selected quotes.

2.4.5. Resonance

The quotes included have attempted to meaningfully present the participants' voices and experiences in such a way that the reader is affected by their responses.

2.4.6. Significant contribution

Due to the novelty of this work in SA, and in Africa, the authors would content that this study makes a significant contribution to the field of preconception health in LMICs.

2.4.7. Ethical

Ethical approval for the study was granted by The University of the Witwatersrand Human Research Ethics Committee (M171066). All participants gave written informed consent before the commencement of the FGDs. In addition, attention was paid during the research process

Table 1
Quotations: beneficiaries' challenges and needs.

Beneficiaries' challenges and needs
<p>Social pressure: It's school stress, it's family, it's just like you know there is always those people in your family who will just pressurise you or expect, okay let me just start here. I'm a pastor's kid. So, even our pastors kids are expected to live in a certain way like go by the bible. They forget that I'm human we all make mistakes...They all want that now you know, you always have to please everyone, the family, the church everyone.</p> <p>I'm the first one to get matric, I feel pressure, like in a way I'm a role model, so it means now I can't live my life the way I want, my social life must be like this or that, so now I must stay- you know, because one mistake- also stress because now I can't focus, or live my life the way I wanted to live it...I feel like I'm being pressured by my family.</p> <p>Everyone is pressuring you to be something that you are not, that you cannot handle. Those people when they involve your family it's an additional pressure that you can't even sleep at night. Sometimes it's even your school work it's a lot you cannot handle...</p> <p>Peer pressure: We want to fit into a certain group. If you don't drink, if you don't have a Blesser, if you don't have a child you won't fit into a certain group. So, that is why most of the time we do things. Because we want to fit in. We want to be known oh this is her.</p> <p>Treatment by men: Or sometimes some people want love because they didn't get it from their fathers, and then you meet someone and they use that to control you, a lot of things, like your voice isn't audible anymore, they're the only ones that talk.</p> <p>Then I also face pressure from males in the community making sexual comments about you and then harassing you not only verbally but like they would do it physically.</p> <p>Other social issues: As well when you go out you are always scared of what if today it's going to be big with regards to kidnapping and rape or somebody just hitting me because you are dressed in a certain way. Because South Africa had situations where women were beaten up for dressing a certain way. So, like for me when I walk out of the house I say a little pray oh God can it not be me all the time, can it not be me.</p> <p>Need for support: I personally feel like I do like entirely like this support because I feel like university is really overwhelming there is just a lot of pressures. There is a lot to face. So, I feel like I need every support academically, maybe emotionally. But I feel people don't do that. But ja, I need support and financially.</p>

(including analysis and interpretation of findings) to be sensitive to situational and cultural ethics.

2.4.8. Meaningful coherence

This study has achieved what it set out to do. It builds on extensive formative work in the Soweto setting on life course epidemiology and provides valuable insights for the continuation of this work into intervention research.

3. Results

3.1. Beneficiaries' challenges and needs

The following section specifically discusses beneficiaries' challenges and needs, with illustrative quotes provided in Table 1. With regards to their physical health, participants had mixed views and some misconceptions about obesity in terms of its link to health behaviour and poor health outcomes, and whether it needs to be addressed in their community. The relationship between unhealthy eating habits and obesity seemed to be clearer, and it was apparent that participants had easy access to unhealthy food in their communities, making healthy eating choices particularly difficult. There also seemed to be limited value placed on the health services available to them, since they were

not perceived to have benefit for them. It was evident from participants' responses that mental health is far more salient for these young women. This was apparent in the challenges they face, and the needs they expressed, which appear to be a consequence of these challenges. The challenges that participants spoke about could be classified as those relating to social pressure, identity, and socioeconomic circumstances.

Social pressure emerged as the greatest challenge facing these young women, and many argued that they face more pressure than men in their communities. For example, it was reported that parents prioritise their daughter's education over their health and wellbeing; thus women were under pressure to succeed in school. This is intensified if a young woman is the first in her family to finish school and enroll in tertiary education. Furthermore, existing family conflicts, "difficult family backgrounds", and communication challenges between young women and parents (especially mothers), exacerbated this pressure.

Peer pressure was also discussed frequently, and it was mentioned that women are more concerned than men about what others think of them. Social media was believed to worsen this peer pressure, and relationship dynamics (with men) appeared to both contribute to peer pressure and create competition amongst young women. The issue of "blessers" was mentioned often, referring to older men having a sexual relationship with younger girls in exchange for gifts or money, which helped young women "fit in". In addition, women reported feeling disrespected, judged, unsupported and disempowered in their communities, especially by men. This feeling impacted negatively on their self-esteem and identity, causing them to not be true to who they are.

Socioeconomic challenges mentioned by participants included a lack of financial resources, food insecurity, unemployment, and difficulty finding work. Other social issues mentioned that could be related to the economic context of participants' communities included abuse (physical, emotional and sexual), crime (particularly rape, robbery, abduction), safety concerns, drug and alcohol abuse, teenage pregnancy, and not completing school. Linked to these challenges, particularly those relating to social pressure and identity, participants expressed feelings of loneliness, and the need for acceptance, encouragement, motivation, support, and someone to believe in them. This support would be emotional, as well as social support for healthy choices. In addition, participants expressed the need for role models and mentors to help them deal with the challenges they face.

3.2. Preferences for intervention strategies

3.2.1. Intervention content

Illustrative quotes for participants' preferences for intervention content are provided in Table 2. In terms of participants' preferences for intervention content on physical health, the most frequently mentioned suggestions were healthy eating and contraception. Other topics relating to physical health included HIV, pregnancy, diabetes, general health, disease prevention, weight loss, exercise, looking after a baby, and accessing healthcare facilities. Participants also requested content relating to mental health more generally, with one participant arguing that mental health should be the priority. Specific topics that came up included depression, peer pressure, relationship and family dysfunction, rape, abuse (physical, emotional and sexual), coping with pregnancy, gender discrimination and the disempowerment of women, and life skills. Other suggestions for intervention content mentioned by a few participants included growing a vegetable garden, and education support.

Regarding possible intervention materials, some indicated a preference for reading, and for engaging with printed or written materials to encourage them to document their experiences of and progress within an intervention. Suggestions included a journal or diary, a workbook, pamphlets, cue cards and charts; there were concerns that 'others' could access a written journal, while a journal on a phone could be more private. Some participants also preferred digital material or information via their cell phone (SMS, WhatsApp or email). Other

Table 2
Quotations: preferences for intervention content.

Preferences for intervention content

Intervention topics

And maybe teaching us how the causes of diabetic how does unhealthy food harm us maybe target that as well.

Healthy eating, like they must teach us how to plant food that we can take from the yard and then we cook them, healthy food.

I also want to know how other people deal with certain things. Because I feel like as people like you can never be too young or too old to make the next person learn something from you. So, I just want to know how people deal with things. So, in you telling me your problem and how you dealt with it it's you advising me in a way. I just take points from what you are saying.

...you get that fear, that you don't know how you're going to prevent, when you get there there's no one to assist you, to tell you the different types of prevention [contraception], when you get there the nurses look at you, they don't tell you, so you know about prevention, they don't tell you, you want pills, they give you. They don't tell you about alternatives and what they do, the education behind prevention is not there.

...how to overcome peer pressure as young women. I think that is the most important thing that is affecting us.

To be quite honest I think mental issue for me personally mental issues should take first priority. Because it's then your mind, it's your mind set. Because if you are feeling lonely you go and eat, if you are feeling down you go smoke, if you are feeling what you go drink. So, I don't know if our mental capacity comes first and we fix that first then everything else around us will follow.

I feel like in terms of emotional health depression is the most important one. I feel like black parents are not all there for their children for emotional issues. They are there physically and stuff but in terms of emotional health they are never there to support their children. Because they don't take these things seriously.

Intervention materials and activities

Like have a journal that you keep everything maybe have a health journal with health diets and all that, then have a personal journal where it's other experiences maybe mental whatever...It should be interesting, it shouldn't be a bore. I don't want to get bored if I'm going to do something. It should be fun that I enjoy doing it. Like personally I like writing and reading. So, personally it's better for me to write and read other than to practically do something.

I'd prefer a book, because other times I don't notice my phone, or maybe I get a message and I don't look at it at the time but with a book I know, that, it's a sure thing, I'll look at it.

With regards to a book I don't think it should have copy most young people don't like to read especially if it's a book...they lose interest. If it's a PDF document on your phone, you know because we like our phones. In the phone it's much more simpler than a hard copy.

I think young women have a problem, well not women only, but young people have a problem of forgetting easy. So, if maybe I only participate with something on the weekends and I don't have something to do at home about it, I can easily forget about it...so it would be nice to have something to do at home you know, to keep in touch.

I once had one [a journal] and people were reading each and everything that you write...I would sometimes write how I feel about a person that I saw, I guy that I saw...and people read it and say "ha?!" So, yes, it's no longer safe.

suggestions were group chats; a Facebook page; television programmes; and digitally recording their experience or progress i.e. photos of healthy food choices or creating video diaries or 'vlogs' (video blogs).

Participants' preferences for intervention activities ranged from educational sessions, to fun and interactive practical activities including games (e.g. netball, tennis, aerobics, bowling, skipping) and activities (team building, bonding, retreats) that helped them get to know each other and build relationships. Other suggestions included learning new skills, such as doing makeup, nails, hair; and outdoor activities, such as hiking and rock climbing. Participants were generally receptive to the

Table 3
Quotations: preferences for intervention delivery.

Preferences for intervention delivery

Delivery agent

They [nurses] give us trouble, because they'll tell you that, "you're still small, what do you know about that, why do you want to know about something so grown" and that's why you'll tell yourself, "okay, I'm keeping this thing to myself" and then at that time, I know that probably I have an STI or this or that, but I can't go to the clinic because the nurse won't treat me well.

...someone that is in their late 30s, early 40s. Someone who is patient, someone who is understanding, someone that wants to listen and help. You know I don't want someone who is going to rush me and judge me. I want someone who is going to be able to listen to what I'm saying, give me advice...someone who is able to take from their experiences, bring them into mine and give me advice that is solid.

Profession, that's all that matters, if she's professional, she knows that it's a secret, whatever we say, we keep it to each other, and then if my mom can come and say "[Name], today is like this and this, what did she say to you?" she doesn't have the right, so it all goes with profession.

Well I think it's the idea of knowing that you have someone to talk to anytime, about anything...And I think that being able to be honest and speak about anything.

I prefer someone younger, not below 30s, maybe early 30s or, yes, someone young, because I feel if I will be speaking with someone who is younger, they will be knowing exactly what I will be talking about, if I say I did that. Unlike an old person who will like, maybe they'll be confused. I don't think old people experienced things that we are experiencing now. So I prefer someone young.

I'd also like that person to be young, but not as young as me, she should be in here 30s you see? I think then she's experienced and she'd be able to be a good life coach, and then, yes, she shouldn't be a person from nearby, she should be far.

That would be a good thing for the community because a health worker knows more about health. So, he can get information from that person and you know. I think it would work.

Mode of delivery

One-on-one is better, also as girls, we are talking right now, yes, it's also better, we not talking things personal from here, but we sharing what we also experience, and what also we think, but on one-on-one, we tell the person, what you have done, what do you want to change.

Because someone you know will talk about you. The things you discuss here, they'll go and talk about it, and say "this and that is going on".

We're not talking about me hey? First with this person that I'm talking to, we talking everything about me hey? And then I come to a point...where I tell her about my family, or situation at home, this is where she comes in, and then yes, we could talk like this as a family, but we not discussing what I said to her when we were together.

Because there are other things I haven't disclosed to my mom, so she'll be surprised when someone shows up, "why can you talk to someone else without speaking to me, why didn't you start with me?" and plus now she might want to eavesdrop on the conversation. So not at home.

I prefer if I'm going to have a family session it's not that it's impossible it's possible but difficult. If it was a family session I would want us to go out of the environment. Because when we are at home inside the house we are always looking at what is wrong, like we are always focusing on the bad when we are at home. I would rather if we go out we go to a place that is a different environment, it's easy to open up I feel. As long as it's not like, very sensitive topics like really sensitive.

idea of "homework", as it was perceived as a way to keep them engaged in the intervention between sessions.

3.2.2. Intervention delivery

Illustrative quotes for participants' preferences for intervention delivery are provided in Table 3. Participants were unanimous in their negativity towards nurses delivering interventions due to having

experienced mistreatment by nurses at clinics. They believed that nurses did not respect confidentiality, were rude and judgemental, and did not listen to them or provide relevant information. This was particularly the case for contraception services, where judgement appeared linked to nurses' beliefs that young women should be focused on education and not be sexually active, often not acknowledging that pregnancy could be the result of rape. This adds to the pressure young women feel, leading them to not access information about contraception.

In contrast, participants liked the idea of an intervention delivered by community health workers (CHWs), who were generally viewed in a positive light. Most participants agreed that the CHWs should be female. They felt strongly that the CHWs should not come from the same community, and specifically that they should not already know the participants, or anything about them, highlighting the importance of CHWs being able to maintain confidentiality and be "professional". Despite the emphasis on CHWs being "strangers", participants in one group emphasised that those providing health information (such as CHWs) should be from the community, or at least familiar with the community, if they are trying to address health issues within the community and be seen as relatable. This implies that the social distance between participants and CHWs should not be too great that the CHWs are not able to relate to the context in which participants live.

Ideal character traits described for these CHWs included: non-judgemental, compassionate, motivating, patient, understanding, supportive, open and helpful. Participants felt that CHWs should be "easy going", not "grumpy", good at communicating and listening to them, well trained, and accessible (e.g. by phone) if needed. They also believed CHWs could provide mental and social support, mentorship and life coaching. One key characteristic of the CHW was her life experience, which should be greater, or at least similar to participants, and able to provide valuable advice on how they had overcome similar challenges. Participants wanted CHWs old enough to have this life experience (although not so old as to be too "serious" or "judgemental"), and young enough to still be vibrant and relate well to the young women. While a range of ages for CHWs were suggested, it appeared that around 30 years old would be the most widely accepted age range.

Participants were asked about their preferences for intervention delivery, i.e. one-on-one sessions with a CHW, family sessions, or peer group sessions. While there were mixed views, the idea of meeting up with peers was generally agreeable and seen as a forum for sharing experiences and providing mutual social support. Again, the issue of "strangers" emerged, with many participants wanting groups comprised of women they did not know, fearing issues around confidentiality and trust. Strangers were perceived as: less judgemental; less inclined to talk externally about what has been discussed in the group; and an opportunity to gain inspiration or new ideas from different perspectives and life experiences. Although, participants highlighted the importance of having common experiences and challenges within the group. Balancing the need for confidentiality with opportunities for new ideas, activities and educational sessions were preferred for group meetings, with discussion of personal issues reserved for one-on-one sessions with CHWs.

The suggested locations for the group sessions were community venues, e.g. churches. For one-on-one CHW sessions, many participants felt that their home environment was not sufficiently private, and they would not feel comfortable. Community venues were also suggested for one-on-one meetings, although the feasibility of this was not explored. Most participants were not particularly positive about the idea of family sessions, and did not feel comfortable about having these in their home. For some, this related to existing communication difficulties with parents, and feeling mothers may be upset if their daughters talked to CHWs but not to them. Some participants felt that their family members would not be interested in speaking with a CHW, or would be resistant to new knowledge or being open in family sessions. A few participants were worried their family members might be rude to a CHW,

particularly if they felt "attacked" in the family sessions. Some participants had concerns about privacy during the family sessions, and whether what they shared with the CHW would then be shared with their family, particularly if it was of a personal nature. Despite these concerns, many participants saw value in these family sessions, and some felt that these sessions could help to strengthen family relationships.

Participants agreed that they would be able to make time for the proposed intervention sessions, and that they would be happy to meet with a CHW at least three times a month. Participants were also happy with attending group sessions once or twice a month on a Saturday.

4. Discussion

The findings of this study present new insights into young women's preferences for intervention strategies to promote physical and mental health preconception, in a rapidly transitioning, poor, urban South African setting. Perhaps the most helpful insight from these findings is the importance of integrating mental health as a prominent component of preconception strategies for these women, rather than only focus on their physical health.

It is clear that the challenges these women face are extensive, and that their need for support is great. These challenges and needs provide a complex background against which interventions must be developed and implemented. However, it is clear that the appetite for more support and assistance for young women is substantial.

This research provides evidence for the intervention strategies that could be feasible and acceptable for young women in Soweto in the preconception period. An intervention that does not adequately acknowledge context (Barker et al., 2018; Hoddinott, 2015), considering the socioeconomic challenges mentioned by participants and the pressure they feel, is unlikely to be feasible and acceptable. Acknowledging this social pressure and helping to empower women with a sense of agency (able to make personal decisions, and influence the factors that shape their lives (Williams, 2017)) about their healthy behaviour choices is an approach much more likely to result in an acceptable intervention, and one that could have a positive impact on their health. Furthermore, interventions should recognise the way in which young women's identities are being shaped by these challenges and pressures, and aim to contribute positively to their identity development.

From a content and delivery perspective, while evidence is compelling for addressing physical health in the preconception period is important for the future health of the mother and child (Stephenson et al., 2018), the prominence of mental health concerns in the FGDs highlights the importance of incorporating this into interventions. This is supported by evidence that indicates that poor preconception mental health can negatively impact on pregnancy and birth outcomes (Witt et al., 2012) This should be considered from a content point of view, as well as from a delivery perspective. The emotional support and encouragement that could be provided by CHWs and peers could be greatly beneficial for the mental health of young women receiving intervention, and could help to address some of the needs articulated by participants. Particularly, as the mental health support/services in the public healthcare sector in South Africa, as it is in most Sub-Saharan African countries, are desperately limited. The difficult family relationships spoken about by young women explain why they are not as enthusiastic about family sessions. Furthermore, the value of social and emotional support for the promotion of health has been emphasised (Reblin and Uchino, 2008), and parents should be involved in providing this support, since they are a strong influence of health behaviours in the preconception period (Draper et al., 2015).

A limitation of this study is that it has focussed on young women from one particular setting. However, given the highly urbanised and transitioned context of Soweto, these findings are likely to be relevant to other urban environments but also are indicative of issues affecting young women for populations that are transitioning towards the Soweto

context. This focussed recruitment strategy can also be viewed as a strength, since these findings provide contextually specific information that is directly relevant to HeLTI and the development of intervention strategies in this setting.

5. Conclusion

Preconception health is an area that has received insufficient attention thus far African research and practice. This study provides valuable qualitative insights that contribute to the development of intervention strategies, while considering the challenges and needs of young women to equip and empower them to make healthier choices, for themselves and for the next generation.

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Conflict of interest statement

The authors declare that there are no conflicts of interest.

References

- Abrahams, Z., Mchiza, Z., Steyn, N.P., 2011. Diet and mortality rates in sub-Saharan Africa: stages in the nutrition transition. *BMC Public Health* 11, 801. <https://doi.org/10.1186/1471-2458-11-801>.
- Barker, M., Dombrowski, S.U., Colbourn, T., Fall, C.H., Kriznik, N.M., Lawrence, W.T., Norris, S.A., Ngaiza, G., Patel, D., Skordis-Worrall, J., Sniehotta, F.F., Steegers-Theunissen, R., Vogel, C., Woods-Townsend, K., Stephenson, J., 2018. Intervention strategies to improve nutrition and health behaviours before conception. *Lancet* 391, 1853–1864. [https://doi.org/10.1016/S0140-6736\(18\)30313-1](https://doi.org/10.1016/S0140-6736(18)30313-1).
- Baxter, J.-A.B., Wasan, Y., Soofi, S.B., Suhag, Z., Bhutta, Z.A., 2018. Effect of life skills building education and micronutrient supplements provided from preconception versus the standard of care on low birth weight births among adolescent and young Pakistani women (15–24 years): a prospective, population-based cluster-randomized trial. *Reprod. Health* 15, 104. <https://doi.org/10.1186/s12978-018-0545-0>.
- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qual. Res. Psychol.* 3, 77–101. <https://doi.org/10.1191/1478088706qp0630a>.
- Brown, H.K., Mueller, M., Edwards, S., Mill, C., Enders, J., Graves, L., Telner, D., Dennis, C.-L., 2017. Preconception health interventions delivered in public health and community settings: a systematic review. *Can. J. Public Health* 108, e388–e397.
- Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., Petticrew, M., Medical Research Council Guidance, 2008. Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ* 337, a1655. <https://doi.org/10.1136/bmj.a1655>.
- Draper, C.E., Grobler, L., Micklesfield, L.K., Norris, S.A., 2015. Impact of social norms and social support on diet, physical activity and sedentary behaviour of adolescents: a scoping review. *Child Care Health Dev.* 41, 654–667. <https://doi.org/10.1111/ceh.12241>.
- Fleming, T.P., Watkins, A.J., Velazquez, M.A., Mathers, J.C., Prentice, A.M., Stephenson, J., Barker, M., Saffery, R., Yajnik, C.S., Eckert, J.J., Hanson, M.A., Forrester, T., Gluckman, P.D., Godfrey, K.M., 2018. Origins of lifetime health around the time of conception: causes and consequences. *Lancet* 391, 1842–1852. [https://doi.org/10.1016/S0140-6736\(18\)30312-X](https://doi.org/10.1016/S0140-6736(18)30312-X).
- van Heyningen, T., Honikman, S., Myer, L., Onah, M.N., Field, S., Tomlinson, M., 2017. Prevalence and predictors of anxiety disorders amongst low-income pregnant women in urban South Africa: a cross-sectional study. *Arch. Womens Ment. Health* 20, 765–775. <https://doi.org/10.1007/s00737-017-0768-z>.
- van Heyningen, T., Honikman, S., Tomlinson, M., Field, S., Myer, L., 2018. Comparison of mental health screening tools for detecting antenatal depression and anxiety disorders in South African women. *PLoS One* 13, e0193697. <https://doi.org/10.1371/journal.pone.0193697>.
- Hoddinott, P., 2015. A new era for intervention development studies. *Pilot Feasibility Stud.* 1, 36. <https://doi.org/10.1186/s40814-015-0032-0>.
- Lang, A.Y., Boyle, J.A., Fitzgerald, G.L., Teede, H., Mazza, D., Moran, L.J., Harrison, C., 2018. Optimizing preconception health in women of reproductive age. *Minerva Ginecol.* 70, 99–119. <https://doi.org/10.23736/S0026-4784.17.04140-5>.
- Mason, E., Chandra-Mouli, V., Baltag, V., Christiansen, C., Lassi, Z.S., Bhutta, Z.A., 2014. Preconception care: advancing from 'important to do and can be done' to 'is being done and is making a difference. *Reprod. Health* 11 (Suppl. 3), S8. <https://doi.org/10.1186/1742-4755-11-S3-S8>.
- Mayosi, B.M., Flisher, A.J., Lalloo, U.G., Sitas, F., Tollman, S.M., Bradshaw, D., 2009. The burden of non-communicable diseases in South Africa. *Lancet* 374, 934–947. [https://doi.org/10.1016/S0140-6736\(09\)61087-4](https://doi.org/10.1016/S0140-6736(09)61087-4).
- Micklesfield, L., Munthali, R., Prioireschi, A., Said-Mohamed, R., van Heerden, A., Tollman, S., Kahn, K., Dunger, D., Norris, S., 2017. Understanding the relationship between socio-economic status, physical activity and sedentary behaviour, and adiposity in young adult south African women using structural equation modelling. *IJERPH* 14, 1271–12. doi:<https://doi.org/10.3390/ijerph14101271>.
- National Department of Health, Statistics South Africa, South African Medical Research Council, ICF, 2017. South Africa Demographic and Health Survey 2016: Key indicators. NDoH. In: Stats SA. SAMRC, and ICF, Pretoria.
- Prioireschi, A., Brage, S., Westgate, K., Norris, S.A., Micklesfield, L.K., 2017. Cardiorespiratory fitness levels and associations with physical activity and body composition in young South African adults from Soweto. *BMC Public Health* 17, 301. <https://doi.org/10.1186/s12889-017-4212-0>.
- Reblin, M., Uchino, B.N., 2008. Social and emotional support and its implication for health. *Curr. Opin. Psychiatry* 21, 201–205. <https://doi.org/10.1097/YCO.0b013e3282f3ad89>.
- Redinger, S., Norris, S.A., Pearson, R.M., Richter, L., Rochat, T., 2018. First trimester antenatal depression and anxiety: prevalence and associated factors in an urban population in Soweto, South Africa. *J. Dev. Orig. Health Dis.* 9, 30–40. <https://doi.org/10.1017/S204017441700071X>.
- Sedibe, M.H., Feeley, A.B., Voorend, C., Griffiths, P.L., Doak, C.M., Norris, S.A., 2014. Narratives of urban female adolescents in South Africa: dietary and physical activity practices in an obesogenic environment. *S. Afr. J. Clin. Nutr.* 27, 114–119.
- Sedibe, M.H., Pisa, P.T., Feeley, A.B., Pedro, T.M., Kahn, K., Norris, S.A., 2018. Dietary habits and eating practices and their association with overweight and obesity in rural and urban black South African adolescents. *Nutrients* 10, 145. <https://doi.org/10.3390/nu10020145>.
- Skau, J.K.H., Nordin, A.B.A., Cheah, J.C.H., Ali, R., Zainal, R., Aris, T., Ali, Z.M., Matzen, P., Biesma, R., Aagaard-Hansen, J., Hanson, M.A., Norris, S.A., 2016. A complex behavioural change intervention to reduce the risk of diabetes and prediabetes in the pre-conception period in Malaysia: study protocol for a randomised controlled trial. *Trials* 17, 215. <https://doi.org/10.1186/s13063-016-1345-x>.
- Sparkes, A.C., Smith, B., 2009. Psychology of sport and exercise. *Psychol. Sport Exerc.* 10, 491–497. <https://doi.org/10.1016/j.psychsport.2009.02.006>.
- Statistics South Africa, 2012. Census 2011. Statistics South Africa, Pretoria.
- Stephenson, J., Heselehurst, N., Hall, J., Schoenaker, D.A.J.M., Hutchinson, J., Cade, J.E., Poston, L., Barrett, G., Crozier, S.R., Barker, M., Kumaran, K., Yajnik, C.S., Baird, J., Mishra, G.D., 2018. Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health. *Lancet* 391, 1830–1841. [https://doi.org/10.1016/S0140-6736\(18\)30311-8](https://doi.org/10.1016/S0140-6736(18)30311-8).
- Steyn, N.P., Nel, J.H., Parker, W., Ayah, R., Mbithe, D., 2012. Urbanisation and the nutrition transition: a comparison of diet and weight status of south African and Kenyan women. *Scand. J. Public Health* 40, 229–238. <https://doi.org/10.1177/1403494812443605>.
- Tracy, S.J., 2010. Qualitative quality: eight “big-tent” criteria for excellent qualitative research. *Qual. Inq.* 16, 837–851. <https://doi.org/10.1177/1077800410383121>.
- Williams, M., 2017. “Practicing” women’s agency and the struggle for transformation in South Africa. *J. Contemp. Afr. Stud.* 35, 525–543. <https://doi.org/10.1080/02589001.2017.1370079>.
- Witt, W.P., Wisk, L.E., Cheng, E.R., Hampton, J.M., Hagen, E.W., 2012. Preconception mental health predicts pregnancy complications and adverse birth outcomes: a national population-based study. *Matern. Child Health J.* 16, 1525–1541. <https://doi.org/10.1007/s10995-011-0916-4>.
- Wrottesley, S.V., Pisa, P.T., Norris, S.A., 2017. The influence of maternal dietary patterns on body mass index and gestational weight gain in urban black South African women. *Nutrients* 9, 732. <https://doi.org/10.3390/nu9070732>.