Promoting mental wellbeing among pregnant and postpartum adolescents: A toolkit for adolescents living in urban poor environments

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Abstract

Background: About one in five of women aged between 15 and 49 years old experience a mental disorder in antepartum and postpartum period in developing countries where routine screening and treatment are sometimes not prioritized due to other competing health issues needing urgent attention. The prevalence of mental health disorders is even higher among pregnant adolescents who face constant stigmatization from society and peers.

Methods. This paper reports on an innovative toolkit for maternal mental health promotion among pregnant and postpartum (2 years post-delivery) adolescent girls. The toolkit is intended to provide pregnant and postpartum adolescent girls with the knowledge, problem-solving skills, coping mechanisms and confidence they need to protect their mental health during pregnancy and early motherhood. The toolkit was co-created with 50 pregnant and postpartum adolescent girls living in urban poor settings in Nairobi, in a 3-step approach, and tested through a field experimentation with 130 pregnant and postpartum adolescent girls living the slums. We also report on results from qualitative interviews conducted post-experiment to assess views and satisfaction with the toolkit package, and experiences and preferences with the two delivery modes used for delivering the toolkit package (face-to-face and through phones).

Results: The toolkit development process provided a critical opportunity for adolescent girls to engage on maternal mental health issues and reflect on their lived experiences, thus improving on their mental health awareness. Preliminary qualitative insights from adolescent girls indicate that the toolkit sessions were effective in improving overall wellbeing.

Conclusion: Large scale implementation of maternal mental health interventions is needed the improve health and wellbeing of adolescent mothers living in poor environments across the sub-Saharan African region. Our toolkit provides an adolescent-friendly tool to be used for such interventions.

Background

Maternal deaths were estimated at 295,000 globally in 2017 with sub-Saharan Africa accounting for 66% of deaths [1]. Pregnant adolescents (15-19 years) in Africa carry a high burden of maternal deaths with an excess mortality risk estimated at 570 per 100,000 births [2]. Although the excess mortality for adolescents compared with young and older women is not significantly large in the region, the long-term consequences of teenage pregnancies and motherhood call for critical attention and investments targeting adolescents. While major progress has been made globally at political, research, programmatic and social levels to improve access and utilization of sexual, reproductive and maternal health services among adolescents [3,4], major inequalities across and within regions are still prevalent. In sub-Saharan Africa in particular, data suggests that adolescent girls in West and Central Africa are likely to have poor access to reproductive services and poor outcomes as compared to girls in Eastern and Southern Africa because of relatively lower level of education and higher exposure to poverty [5].

A growing body of evidence indicates that pregnant adolescents above being at high risk of maternal complications and mortality face an increased amount of stigmatization from society and peers [6-8] which puts them at risk of adverse mental and psychosocial adversities [6,9-10]. Disorders such as depression, anxiety, bipolar disorder and psychosis during pregnancy and the postpartum appear to be more prevalent among adolescents ages 21 years and below than among young or adult women [11]. Moreover, teenage pregnancy was found to be a risk factor for hypertensive disorders during pregnancy in different settings [12-13]. Data on causes of maternal mortality in a range of settings indicate that adolescent die for similar reasons as older women (i.e. from hemorrhage, abortion, sepsis and hypertensive disorders), but hypertensive disorders is a more important cause of death among adolescents [12].

Mental health disorders during pregnancy and the postpartum period, including depression, anxiety and psychosis, have been associated to poor reproductive and child health outcomes (see Table1). Pregnant women with mental disorders exhibit low levels of utilization of antenatal and postnatal care services, poor adherence to prescribed health regimes, and risks of obstetric and preterm labor [14]. Children born from women with mental health disorders are at high risk of low birth weight, malnutrition and stunting, delays in immunization, and diarrheal and infectious diseases due to poor breastfeeding practices and health care seeking behaviors by the mothers [14,15]. Moreover, maternal depression is linked to long term psychological disturbances in children [16].

[Insert Table 1]

Despite the evidence on mental health support need women in low and middle income countries, there is a little attention on the matter within health policies and programmes [17,18]. Some of the challenges in integrating mental health care into routine primary care in the region include low numbers of mental health professionals; lack of national policies and guidelines for service provision; limited evidence on case detection and treatment strategies; and the stigma of mental illness [18].

We started the Sasa Mama Teen project (https://gcgh.grandchallenges.org/grant/sasa-mama-teen-project-strong-minds-stronger-adolescent-mothers-nairobi-slums) in 2018 in order to fill the gaps in maternal mental health interventions among adolescents. The project engaged adolescent girls living in the main informal settlements (namely Korogocho, Viwandani, Kibera, Mathare, Karangware, and Dandora) in an innovative co-creation initiative to jointly design and test feasibility of a youth-friendly toolkit of information, skill and confidence building and coping mechanisms that can effectively shield them and their peers against the risks of mental stress during pregnancy and early motherhood. Previous work with adolescents in Nairobi slums indicate that girls actively seek to develop mechanisms of resilience in order to lead healthy and stress-free lives [19]. Leveraging those lived experiences is key to formulating successful solutions that meet their specific needs.

This papers reports on the process for toolkit development, perceptions and experiences of girls regarding the toolkit usefulness, and future direction.

Methods

The toolkit development process

The Sasa Mama Teen toolkit was developed through a phased process. Figure 2 summarizes the conceptual and operational framework used. We conceptualized that the toolkit will have an impact at two levels: 1. the level of adolescents' awareness of their mental wellbeing (i.e. recognizing daily life stressors and increasing inner ability to reflect and to act on stressors), 2. Skills to deal with stress. The different phases included formative interviews with pregnant and postpartum adolescents, key informant interviews with various community gate keepers and experts, synthesis of information from interviews and work with healthcare professionals including mental health clinician consultants to develop tailored activities to respond to each problem identified, and finally toolkit development and field experimentation.

[Insert Figure 2]

Assessment of the toolkit appropriateness and usefulness

This was assessed through the field experimentation phase conducted over a period of 6 months with a random sample of 130 pregnant and adolescent mothers drawn from two selected slums, pregnant or who have recently given birth, and willing to be part of the study (see Table 2 for the sample characteristics). Two innovative avenues for delivering the toolkit package were tested: 1) Girls' Out events facilitated by adolescent girls themselves, and 2) peer-group support discussions facilitated on WhatsApp (Girl Chat). The 130 adolescents were randomly selected to participate in each group. Phones were provided for adolescents not having one. We partnered with two active and influential youth groups working with adolescents in Nairobi informal settlements (U-Tena and Miss Koch), and provided them with training to help identify potential participants. We also collaborated with nurses from local clinics to provide guidance during health information sessions.

The Girls' Out events and peer-group support discussions on WhatsApp (Girls Chat) were organized over the 6-month period for the test and tailored for delivering the toolkit package in structured sessions. The Girls' Out Events were unconventional girl-only, girl-led safe spaces" events, organized within the community in locations mapped by adolescent girls themselves. These were spaces where they feel physically and emotionally safe. The events were facilitated by trained mentors including adolescent. Each event brought together a group of 8-10 adolescent girls and lasted 2 hours. The sessions were delivered using catchy tools such as picture cards and role-play. Snacks and refreshments were offered in an effort to create a convivial and attractive setting for adolescent girls. The peer-group support discussions on *WhatsApp* (Girl Chat) were set-up and facilitated by trained adolescent girls. Each group brought together 5 adolescent girls. Contrary to text-messages options tested so far, *WhatsApp* discussions offered the possibility to interact with the facilitator and other participants, to share views and to benefit from other participants' experiences.

A closed supervision and guidance was provided by the research team members during the whole field experiment period. Two trained field interviewers conducted qualitative interviews at the end of the experiment with all the participants to capture their perceptions on the sessions and the two channels used to deliver the sessions. A qualified transcriber transcribed audios recorded during the interviews and translated them from Swahili to English. The research team members read the transcripts and picked key themes and sub themes that emerged and were recurrent and used this information as well as the interview guide to develop a codebook. The codebook guided the thematic analysis of the transcripts on the Nvivo software.

[Insert Table 2]

Results

The toolkit development process outputs

Table 2 summarizes the steps taken to develop the toolkit, including the objectives, activities and outputs for each step. The main outcome of the whole process is a co-designed, adolescent-friendly and validated 40-pages structured toolkit organized around five sections (12 sessions) that can be used strictly for the prevention and management of mild/moderate stress among pregnant and postpartum adolescents living in poor urban settlements in Kenya and potential beyond in the African region. The full toolkit document is availed through this publication as a supplementary document.

[Insert Table 3]

The key advantages of the Sasa Mama Teen toolkit:

1. It can be used for a peer-to-peer-model;
2. It leverages technology highly used by adolescents (WhatsApp)
3. It can be used for mental health assessment and individual-centered care through adolescent friendly, non-health delivery mechanisms

Perceptions and experiences of girls regarding the toolkit usefulness

Findings were organized in two major themes: learnings/knowledge identified or gained from participating in the study and experience with the channels used (Girls' Out events versus WhatsApp sessions).

Learnings/knowledge identified or gained

A good number of girls considered their participation in the field experiment as a life-changing moment. The expressed the fact that they learned from the experiment that their situation is not unique but most importantly than they should not be ashamed of being mothers and live *"stigmatized"* lives.

"...I was very stressed before I joined WhatsApp and even when I got pregnant I wanted to abort so that I can go on with my life. My sister convinced me not to abort. When the baby came I thought I should go and give up the baby or throw away. But before that thought was actualized, one of my friends came and told me that there is another project that has come and told me to come. Now, when I came to the project, they started teaching how you are not supposed to lose hope just because you are pregnant, and if you have a baby your life has not ended it just continues. And I knew that we are many who have children and many that are pregnant so there was no need to look down upon myself…" (In-depth interview, adolescent with a 0-6 months old child, WhatsApp group participant).

"It was hard at the beginning because I would not walk with my baby. I would look for a day care to take the baby because I did not want people to come asking whose baby is this. I was so afraid but now if I want to go to the toilet, I will hold my baby and we go with the baby. Everywhere I want to go I go with my baby because I am proud of the baby. Even if the father of the baby refused the baby I can walk past him and tell him even if you refused the baby…now I have that strength because I have been encouraged and I have the strength to pass anywhere. I am proud to be a mother." (In-depth interview, adolescent with a 12+months old child, WhatsApp group participant).

They also noted the impact of their participation to the experiment on their body image, self-esteem and ability to manage stress on a daily basis.

"...I had added a lot of weight. I was bigger than I am now and I was seeing that this baby has made me change so much. I have become bigger than before…but now after the yoga classes, now I am okay. I have reduced weight and I am not the way I used to be. I have reduced weight and I have also learnt to accept myself. And I have accepted that when someone has agreed to be a parent, you accept a lot of things. Like you have to accept that they body will change, you have to get the stretch marks…this is part of life…" (In-depth interview, adolescent with a 0-6 months old child, Girls' Out events participant).

"the WhatsApp group was good and earlier, my child was sick and the baby was taken to Mbagathi and admitted. Now when the baby was admitted I was too stressed up and I started crying saying that I was not sleeping with the baby. I would be with the baby in the morning and my mother would sleep with the baby and I would go back home. When I shared this on WhatsApp, I was given advice and I was okay. Stress disappeared and I stayed there for almost two weeks. My baby became well though the baby had been put on oxygen. We were just okay…" (In-depth interview, adolescent with a 0-6 months old child, WhatsApp group participant).

"I would look forward to Tuesday the meeting day so that I can come here and meet a lot of people, do yoga and be happy. When you come here, you are taught that you can manage yourself and it helped me the way I am supposed to take care of a baby, how to live with a baby and how to live with other people" (In-depth interview, adolescent with a 12 months+ old child, Girls' Out events participant).

Experience with the channels used

The WhatsApp group participants overwhelmingly expressed complete satisfaction with the process than the Girls' Out events participants.

The Girls' Out event participants indicated that there was not enough space in the venue for engagement with one another, but also complained about the difficulty to reach the meeting sites in a timely manner due to multiple tasks they have to accomplish at home to get ready with a young baby.

"what I can say is that the space was not enough. There was at time we came all of us and if you have a small baby you find that you did not have enough space. And also we were congested, so the space was not enough" (Focus group discussion, Girls' Out events participants).

"you see that time you have a baby and that baby you have to cook for the baby, prepare the baby and by doing all those tasks the time is moving ahead and also maybe as a mother you cannot wake up early" ((Focus group discussion, Girls' Out events participants).

On the other hand, WhatsApp participants praised the convenience provided by the online platform and felt that freedom of expression was enhanced in a process where people do not see others physically.

"WhatsApp, anytime you feel like, you just log in and you find that someone has asked a question and you can comment. There is today's topic and you comment about it also. You are on WhatsApp anytime but face to face you just know your day for coming for meetings is Thursday. Maybe that Thursday you are somewhere else, maybe that Thursday you are busy, some Thursdays you are not sure you can make it and sometimes when you make it you go fifty-fifty. That is where I see it was good." (In-depth interview, adolescent with a 6-12 months old child, WhatsApp group participant).

"Because it does not take time…I mean you can access it any time. There is no time that you cannot get into WhatsApp, be it morning, night time, you just go online and you cannot miss information. For face to face, if you meet one session, it means that you have missed the lesson as well. But for me if I miss and say today I do not have bundles, next day I have bundles I will access everything I was not able to access." (In-depth interview, adolescent with a 0-6 months old child, WhatsApp group participant).

"...people were open and being open meant that people could even share things that they had planned not to share. But because you are in WhatsApp you would find yourself saying things that were not even appropriate. The ones you are not supposed to say because they are your secrets. But face to face, there are some things you can fear to share. Because many people are there and you can just get ashamed. But in WhatsApp because some people are far and you will send and nobody will know who has sent…" (In-depth interview, adolescent with a 0-6 months old child, WhatsApp group participant).

"Everyone was expressing themselves on the group but we couldn't know who was who. Nobody was hiding because no one would know who was talking." (In-depth interview, adolescent with a 0-6 months old child, WhatsApp group participant).

Conclusion And Future Direction

The toolkit development process within the Sasa Mama Teen Project provided a unique experience to meaningfully engage pregnant and postpartum adolescent girls living in urban poor settings on matters of mental health. The process contributed largely in highlighting significant maternal mental health needs among adolescents and testing avenues to promote wellbeing through community-based interventions.

Meaningfully engaging adolescents in the design and implementation of sexual and reproductive health programming is critical for a better understanding of their situations and delivery of appropriate interventions. A meaningful engagement as per the Health Impact Practices (HIPs) Partnership is defined as “an inclusive, intentional, mutually-respectful partnership between adolescents, youth, and adults whereby power is shared, respective contributions are valued, and young people’s ideas, perspectives, skills, and strengths are integrated into the design and delivery of programs, strategies, policies, funding mechanisms, and organizations that affect their lives and their communities, countries, and world” [22,27]. This meaningful engagement of adolescents is particularly important for mental health related interventions. One key lesson learned from the toolkit development is that pregnant and parenting adolescents living in urban poor settings is a unique sub-group of pregnant and parenting adolescents, with unique experiences of stress, and resilience, which need to be well understood. Another key lesson learned was that an individual approach to stress management is not enough. Despite the incredible abilities to be resilient displayed by pregnant and parenting adolescents in the Nairobi urban poor settings [19], the constant psychosocial challenges they face due to poverty, insecurity, stigmatization and rejection from parents/caregivers and other community members, lack of adequate and quality adolescent friendly services, and poor implementation of back-to-school policies highly compromise their resilience mechanisms [6]. There is therefore a need to develop large scale interventions which combined psychological and socio-ecological system actions to support individuals to respond adequately to stress or triggers of stress, while creating nurturing environments that minimize psychological toxic events and foster psychosocial flexibility [22, 28-29]. Our toolkit provides an adolescent-friendly tool to be used for such interventions.

Declarations

Ethics approval and consent to participate

Several measures were taken to minimize any potential stress on our study participants. All activities were conducted in a suitable environment selected within the communities where the girls lived and that ensure a safe space for discussions. The girls were provided with information about the purpose of the study and use of the data before seeking their written consent to participate in the study. They were also informed about the study benefits and their rights as study participants. As all adolescent selected for this study were pregnant or recent mothers, and considered as emancipated minors, parental consent was not sought. The research team also ensured that no girl experienced loss of income or a financial burden due to their participation by not engaging them for a whole day. Day care facilitation was also

provided for adolescent girls with infants during group discussions and for each day they are engage in the project activities away from their homes (i.e. for taking photos). Ethical approval was received from the AMREF Ethical and Scientific Research Committee. The study was also registered with the National Commission for Science, Technology and Innovation.

Consent for publication

All the study participants were informed about data publication through reports and papers during the consenting process.

Availability of data and materials

All data collected under the project is available for public use. This include de-identified qualitative interviews transcripts and pictures taken by adolescents during photovoice activities.

Competing interests

The authors declare no competing interests.

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Authors' contributions

EMS is the Sasa Mama Teen Project Principal Investigator. She conceptualized the study and led the development of the manuscript. CWW, HOA, DK, FK, IBA and CEMO contributed to the study conceptualization, data collection and analysis, and reviewed the manuscript.

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Authors' information

Dr. Estelle Sidze is a maternal and child health specialist building evidence on inequities in access to quality maternal, newborn and child health services in sub-Saharan Africa. She thrives on ensuring that stakeholders and decision makers in sub-Saharan Africa have adequate and quality data to deliver on the

SDG commitment of leaving no one behind in the provision of maternal, child and newborn health services. She is also at the forefront of strengthening evidence and research relevant to mental health of mothers in sub-Saharan Africa, focusing particularly on adolescents' mothers.

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Tables

Table 3 is available in the Supplementary Files section

Table 1. Consequences of perinatal mental disorders

Mental disorder	Reproductive health outcomes	Child health outcomes
Depression	More obstetric complications More visits to physicians and hospital admissions More need for pain relief during labor Increased maternal mortality through suicide Less uptake of contraceptives Negative experience of childbirth and development with consequent less stimulation/play with the child	*Higher risk of:* Stunting Underweight Diarrheal episodes Noncompliance with immunization schedule Difficult temperament Poor cognitive, emotional and behavioral development
Anxiety	Preterm labor More visits to physicians and hospital admissions More need for analgesia during labor	*Higher risk of*: Difficult temperament Impaired cognitive, intellectual and motor development Hyperactivity and inattention Delayed physical growth Gastrointestinal infections
Psychosis	Increased rates of hospitalization	Increased rates of infant mortality

Source:

[14] Maternal mental health and child health and development in low and middle income countries. Geneva, World

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Table 2. Socio-demographic characteristics of the Sasa Mama Teen field experiment participants

Variable	Sample (N)
Motherhood stage	
Currently pregnant	24
Mother of a 0-6-month child	37
Mother of a 7-12- month child	34
Mother of a 12 months + child	35
Age	
15 years	1
16 years	3
17 years	15
18 years	45
19 years	66
Relationship status	
No current partner	63
Have a current partner, not married	44
Have a current partner, married	23
Employment status	
Unemployed	65
Casual work	56
Self-employed	9
Level of education	
Primary	46
Secondary +	84
Total (N)	**130**

Figures

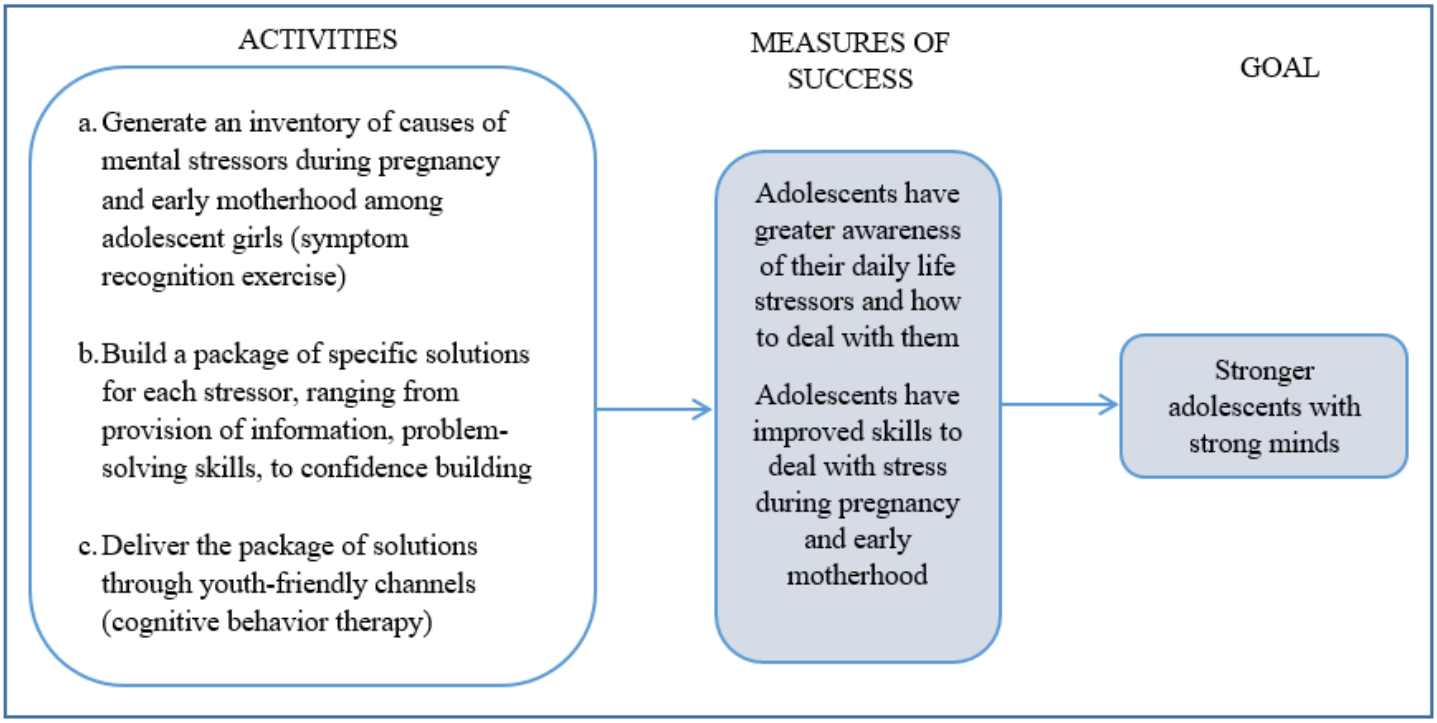

Figure 1

The Sasa Mama Teen conceptual and operational framework

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SasaMamaToolkit.pdf
- Table3.docx