

BMJ Open Maternal mental health of adolescent mothers: a cross-sectional mixed-method study protocol to determine cultural and social factors and mental health needs in Lilongwe, Malawi

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ABSTRACT

Introduction Adolescence marks a transition of life from childhood to adulthood. Becoming a mother during adolescence presents unique challenges that have a significant mental and physical burden and may increase the likelihood of developing common mental disorders (CMDs). Untreated CMDs have serious effects on both the mother and her child. Culture constitutes an important context for most experiences, and affects how individuals seek help. However, there is limited research that has investigated how culture and social factors influence the adolescent mother's mental health during the postpartum period in Malawi.

Methods/design A cross-sectional sequential mixed methods design will be carried out in four phases. Phase one will include the preparatory phase and scoping review. The second phase will comprise a survey with adolescent mothers. The sample for the survey consists of adolescent postpartum mothers aged 14–19 years (with infants of up to 6 months of age) who have the capacity to consent for the study. Phase three will be a qualitative study in which in-depth interviews and focus group discussions will be employed to collect data from health workers and informal healthcare providers in the community (eg, traditional healers, traditional birth attendants). The fourth phase will involve developing recommendations for policy and practice

Ethics and dissemination This study will provide an understanding of the impact of culture and social factors that influence adolescent mother's mental health and well-being, including the identification of potential risk and protective factors. The findings will inform recommendations for an appropriate, culturally accepted spectrum of interventions, including universal, selective and indicated prevention strategies. The findings will be disseminated to stakeholders working in maternal health in Malawi. Ethical approval was received from the Curtin University Human Research Ethics Committee (HRE2021-0223) and (P.05/21/575) Malawian Ethics Board National Committee on Research Ethics in the Social Sciences and Humanities.

INTRODUCTION

Adolescent pregnancy is a significant public health concern globally.¹ In Malawi,

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Mixed methods research design will provide an in-depth understanding of the cultural factors influencing adolescent mothers in Malawi.
- ⇒ Adolescent involvement in the study will ensure recommendations that are evidence based and meet expressed mental health needs.
- ⇒ Data collection with three different participant groups will provide opportunities for data triangulation.
- ⇒ The use of Edinburgh Postnatal Depression Scale, General Anxiety Disorder-7, Hurt Insult Threaten Sexually Abused and Alcohol Use Disorders Identification Test -Concise (AUDIT-C) tools that are already translated into the local language and their psychometric properties are ascertained for use in the Malawian context.
- ⇒ The study cannot determine the temporal relationship between cause and effect due to the cross-sectional study design.

adolescent pregnancy comprises 43.2% of all pregnancies. The global coronavirus pandemic (COVID-19) has resulted in an increase in adolescent pregnancies due to school closures.² Studies conducted in Malawi, Ghana, Ethiopia, Tanzania and South Africa suggested that factors influencing adolescent pregnancies are complex and include partner or peer-related influences^{3 4}; ignorance or lack of knowledge⁵; lack of quality healthcare interventions; and cultural factors.^{5 6} In Malawi, some cultural practices predispose girls to unplanned pregnancies. Examples of these cultural practices include: young girls forced to have sex with an older man when the girl reaches puberty 'fisi' (initiation ceremony); older men marrying very young girls; polygamy; forced marriages; and prearranged marriages.⁷

Notably, adolescent contraceptive use is very low with 34% of adolescents not using

any contraception.^{8 9} This contributes to increased risk of unsafe abortion,⁶ which remains the major cause of maternal mortality¹⁰ and a contributor to social stigma in Malawi.⁹ In addition, local religious teachings disapprove of abortion enhancing the likelihood of social exclusion.¹¹ However, most unsafe abortions are being conducted within the community.¹⁰ This further indicates the unmet need for reproductive health services in the community.

Becoming a parent at a young age is a risk factor for common mental disorders (CMDs).^{12 13} Adolescent mothers may experience emotional changes that may lead to mental and physical health problems.^{14 15} The burden of poor maternal mental health is a public health concern.¹⁶ Worldwide, about 10% of pregnant women and 13% of those that have given birth experience some type of mental disorder.¹⁷ The prevalence rates of CMDs among perinatal women are two to three times more prevalent in low and middle-income countries (LMIC) compared with high-income countries (HIC).^{18 19} In sub-Saharan Africa (SSA), the prevalence rates of CMDs range from 12.5% to 27.1% during pregnancy and 10% to 39% postnatally.^{16 20} In Malawi, the prevalence of depressive disorders and anxiety among women during the perinatal period is 21% and 21.1%, respectively.^{21 22} The variations of prevalence rates are hypothesised to be due to a range of reasons including differences between screening and diagnostic tools^{16 23} as self-report tools tend to report higher prevalence estimates compared with diagnostic tools.²³

Studies from HIC such as the USA report rates of anxiety and depression among adolescent mothers ranging from 46% to 54%.^{24 25} However, despite adolescent mothers' reported greater vulnerability to CMDs, most studies have focused on women who are older than 18 years.^{1 24 26 27} To date, there are no published epidemiological data on rates of CMDs for adolescent mothers in Malawi.

Studies conducted in HIC and some LMIC have found adolescent mothers to be twice as likely to experience depression compared with mothers aged over 18 years.^{12 28–30} However, it is hypothesised that most adolescent mothers within SSA with mental health disorders are not diagnosed and remain untreated.^{31–33} Untreated CMDs in adolescent mothers are associated with poor emotional and cognitive development of the child,³⁴ subsequent poor contraceptive uptake²⁸ and an increased likelihood of adolescent mothers falling pregnant again within 1–2 years.^{28 35 36} In Malawi, these problems are likely linked to the high mortality of neonates (32.6 per 1000 live births) and under 5 year olds (43.7 per 1000 births).⁸ The Malawian maternal death rate is concerning at 439 per 100 000,⁸ of which 20%–30% are adolescents.⁸

Risk factors for poor maternal mental health in Malawi are linked to poverty, abuse, HIV/AIDS and adolescent pregnancies.¹⁷ An analysis of culturally determined risk factors for postnatal depression in SSA found that some cultural practices have an effect on maternal mental health.^{37–39} For example, cultural values and practices that prefer a male to a

female child; and the adherence to the tradition of confinement from society after child birth^{39 40} have been found to be risk factors for postnatal depression.^{38 39} In contrast, cultures that encourage strong social support, and strong connectedness with other members of family act as protective factors for adolescent mothers.^{41 42} The COVID-19 pandemic has also resulted in negative consequences on mother's mental health such as stressful life events, closure of schools, increased child care pressures, increased gender-based violence, extended confinements and grief with the loss of someone very close without being allowed to see that person.^{43 44}

Meta-analyses of studies have indicated that some psychosocial interventions improve the health of infant and maternal outcomes in adult women.^{45 46} For instance, in Pakistan, interventions that are based on the principles of cognitive behavioural therapy (CBT) such as 'Happy Mother Happy Baby',⁴⁷ 'Mother to Mother' therapy⁴⁸ and 'Thinking Healthy Program Peer Delivered'⁴⁹ have been effective in reducing depressive and anxiety symptoms in perinatal women.⁵⁰ A systematic review of interventions to prevent and treat depression among adolescent mothers found phone-based motivational interviewing,⁵¹ Interpersonal Psychotherapy Group,⁵² maternal–infant messaging training⁵³ and CBT interventions⁵⁴ to be effective in reducing symptoms of anxiety and depression.

In Malawi, a wide gap exists between the burden of mental ill health and the mental health services provided.⁵⁵ Provision of mental health services is mainly centralised and not well integrated into primary care. The care of women during the perinatal period focuses on physical health alone.³³ Regardless of the call for the integration of maternal mental health services within maternal care, government policies and guidelines for implementing initiatives to reduce maternal and neonatal deaths have gaps.³³ There are limited mental health promotion interventions specifically targeting adolescent mothers. Mental health services for perinatal adolescents are not well coordinated at the primary healthcare level. Furthermore, there is paucity of research to inform culturally appropriate interventions to prevent maternal mental health problems. This paper describes a protocol for a study that aims to provide evidence regarding the social and cultural factors that influence adolescent mothers' mental health, and explore the healthcare system to support adolescent mother's mental healthcare needs in Malawi. The study findings will inform appropriate and culturally accepted universal, selective and indicated prevention and early intervention services to promote mental health of adolescent perinatal women in Malawi and further inform policy and practice.

METHODS AND ANALYSIS

Broad objective

This mixed methods study aims to investigate social and cultural influences of mental health among adolescent mothers and their mental healthcare needs at Mitundu in Lilongwe District, Malawi. The study will also examine the community-based informal healthcare providers' (traditional birth attendants, traditional healers, health

volunteers, prophets, herbalists) and healthcare workers' knowledge, attitudes and practices towards the mental health of adolescent mothers during the postpartum period. It will then propose recommendations for policy, practice, prevention and management interventions for adolescent mothers in Malawi.

Objectives

To address the aims of the study, the following objectives have been identified:

- ▶ Identify self-reported prevalence of CMDs (depression, anxiety) among adolescent mothers aged 14–19 during the postpartum period.
- ▶ Identify cultural and social factors associated with CMDs among adolescent mothers during the postpartum period.
- ▶ Explore culturally acceptable mental health prevention and promotion strategies for adolescent mothers during the postpartum period.
- ▶ Explore health workers' perceptions of management of mental health issues of adolescent mothers during the postpartum period.
- ▶ Examine community-based informal healthcare providers' (traditional birth attendants, traditional healers, health volunteers, prophets, herbalists) knowledge, attitudes and practices towards mental health of adolescent mothers during the postpartum period.
- ▶ Propose recommendations for policy and practice, for prevention and management interventions for adolescent perinatal mothers in Malawi.

Theoretical framework

The study will be guided by Bronfenbrenner's (1994) bioecological model of human development that proposes individual health behaviour is a result of multiple levels of influence including intrapersonal (biological and

psychological); interpersonal (social and cultural); and organisational (community, physical environment and policy) levels. The model provides a framework for understanding the broader context of cultural and social issues that may influence adolescent mental health.⁵⁶ Although Bronfenbrenner's model has not been applied specifically in the context of adolescent mothers previously, its applicability in specific mental health studies to address substance use and issues of safe schools makes it suitable for this purpose.^{57 58}

Research design

A cross-sectional sequential model of mixed methods will be applied (see figure 1). The study will be conducted in four phases: (1) a scoping review of the literature and building public partnership with community representative, stakeholders and policy-makers for their involvement in informing the research; (2) an interview administered survey with adolescent mothers; (3) interviews and (focus group discussion (FGD)) with health workers and community informal healthcare providers; and (4) recommendations and dissemination. The study will commence in November 2021 until December 2024.

Setting

The study will be conducted at Mitundu which is located in the rural area of Lilongwe district. The area is dominated by Chewa tribe which comprise 34% of all tribes in Malawi, has the largest population within the district and the highest rates of early marriages.⁸ Trends associated with education level, religion, ethnicity, wealth quintile, age distribution, fertility rates, as well as living conditions are similar in Mitundu when compared with other rural areas in Malawi.⁸ Mitundu has a population of 147 823 people, with 29 171 households and 402 villages. About 48% people are aged under 15 years. The district adolescent fertility rate of women between the ages of 14 and 19

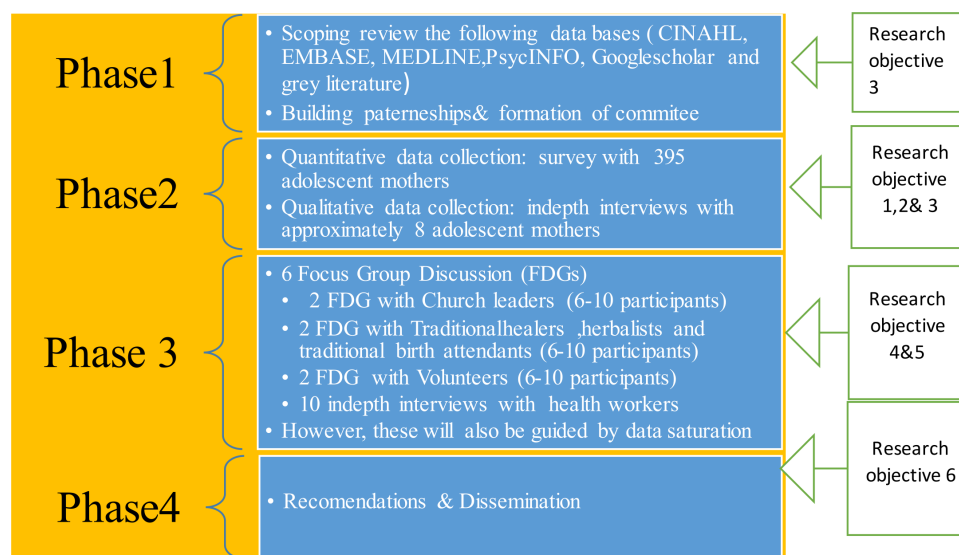


Figure 1 Illustration of the proposed sequential model of mixed methods research and phases of study design implementation.

years is 165 per 1000 women. This area is characterised by high levels of poverty, high rates of early marriages, malnutrition and 90% of the population are subsistence farmers.⁸ Twelve per cent of women have never attained any education and 62% have only completed primary school.⁸ The population's expected number of pregnancies is 7391 per year.⁵⁹ The only health facility in the area is Mitundu Rural Hospital (MRH) where there is an average of 135 deliveries at the by adolescent mothers each month.⁵⁹

Phase 1: scoping review and public partnership

The scoping review will be conducted to inform the study design.^{60 61} In this study, the scoping review will focus on exploring the available evidence on current interventions that address CMDs among adolescent mothers in SSA. Both qualitative and quantitative evidence will be considered. The search will include peer reviewed journals from multidisciplinary and subject specific core electronic data bases such as Medline, EMBASE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychINFO, ProQuest, Google Scholar and grey literature sources from reputable health and welfare organisations, as well as scanning of reference lists of relevant studies (online supplemental file 1). The search strategy will be limited to English language with restrictions to studies published from year 2000. The identified studies will be organised and systematically integrated with the aim of establishing evidence on what is currently known about the contextual mental health interventions to address the mental health of adolescent during the perinatal period in Africa. A three-step method as recommended by Joanna Briggs Institute systematic reviews will be employed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses.⁶²

Patient and public involvement

Partnerships with key stakeholders and organisations engaged in Maternal and Child Health services in the study area will be established. A steering committee will include key stakeholders from the District Health Office, health facility staff, community volunteers, community representatives, adolescent mothers, parent representative, community health workers and Feed the Children International (a Non-Governmental Organisation working in Mitundu) and will adopt an advisory role in all the stages of the study. A half-day briefing session will be conducted by the lead author to present the study concept to stakeholders.

Phase 2: survey instrument development

A survey including closed and open-ended questions will be developed and administered verbally to adolescent mothers (online supplemental file 2). Participants will be recruited via convenience sampling when they present for postnatal check-ups and under-5 clinics at the health facility and at care groups (community-based groups where perinatal women meet for nutrition and other

health education session at the community level). To calculate the sample size for the study, Slovin sample size determination formula $n = N / (1 + N * (e)^2)$ will be used. In this study, N (30 653) is the population of adolescent mothers who are expected to deliver at Mitundu Hospital during one calendar year. The level of precision (e) is 5% at 95% CI. Substituting these values of parameters into the formula; $n = 30653 / (1 + 30653 * 0.0025)$, this provides a minimum study sample size of 395.

Inclusion criteria

Adolescent mothers aged 14–19 years and in their post-partum period (up to 6 months post delivery); able to understand the study information and to provide informed consent; and currently living at Mitundu area. The survey will include six sections.

Section A: demographic and social economic characteristics

Demographics collected will include: household income, parity, tribe, occupation, education, marital status, financial support and perceived social support. Socioeconomic status will be measured by the Wealth Index.⁶³ This tool was designed by the World Bank to measure the household socioeconomic status in low-income countries on the basis of household's ownership of consumer goods, dwelling characteristics, type of drinking water source, toilet facilities and other characteristics.⁶³ Household assets are combined into a composite index of economic status using principal component analysis.^{63 64} The tool has been validated and used in Malawi.^{8 63 65} Perceived social support will be assessed using the validated Multi-dimensional Scale of Perceived Social Support tool (MSPSS).⁶¹ The MSPSS has been evaluated for validity in Malawi, with the tool reporting high internal consistency for the full scale in Chichewa language.⁶⁵

Section B: health behaviours

This section will collect information on alcohol consumption, tobacco smoking and experience of intimate partner violence. Alcohol use will be assessed using AUDIT-C. The tool assesses alcohol consumption by asking three questions focusing on the frequency and level of alcohol consumption.^{66 67} This tool is also validated for use in Chichewa language.⁶⁸ Intimate partner violence will be assessed using the Hurt, Insulted, Threatened, Screamed at and Sexually Abused questionnaire.⁶⁹ The Malawi Demographic Health Survey adapted questions for this tool to assess violence among married and pregnant women in Malawi.⁸

Section C: questions to assess for anxiety

Participants will be screened for symptoms of anxiety using the Generalised Anxiety Disorder 7-item (GAD-7) scale. The GAD-7 has demonstrated an internal reliability of Cronbach alpha $\alpha=68$ coefficient in Ghana and Cote d'Ivoire, and has been used in these countries to assess for anxiety in pregnant women. Studies conducted in Ghana found the threshold score ≥ 10 had a sensitivity of 89% and specificity of 80% for generalised anxiety.⁷⁰ While

there are no published studies using the GAD-7 among perinatal women in Malawi, it has been used to measure anxiety in a longitudinal study conducted to investigate mental health in mature adults with HIV.⁷¹ GAD-7 has been validated for use in high-income, middle-income and low-income countries.⁷⁰ Research has supported the construct validity of the interviewer administered tool in local language.⁷¹

Section D: questions for depression

Depression will be assessed using the Edinburg Postnatal Depression Scale (EPDS). EPDS is a 10-item scale used for diagnosing symptoms of depression experienced in the past 7 days.²¹ It is widely used either as a population-based self-report or a health-worker administered measure.²¹ Studies in Malawi have found internal validity of the EPDS to be high and the tool demonstrates diagnostic accuracy, concurrent validity and reliability.^{21 72} The sensitivity index ranged from 68.8% to 100%; the specificity index 79.5 and reliability (Cronbach's alpha) 0.9 (21, 72).

Section E: COVID 19 questions

There is evidence that mental health problems among adolescent mothers are a result of the SARS-CoV-2 (COVID-19) pandemic and associated restrictions.⁷³ As data will be collected during the COVID-19 pandemic, open-ended questions around support and access to services will be included. In addition, participants will be asked questions around the influence of the pandemic and isolation measures on cultural practices and their general well-being.

Section F: question related to knowledge, attitude and cultural practice

Open and closed-ended questions will be used to collect information about cultural practices in relation to mental health and mental illness. Questions will be adapted from a study conducted in Ghana exploring cultural factors related to pregnancy.³⁷ Examples of items on the instrument are: being isolated in family activities because you have a baby; strict cultural rules, beliefs and practices regarding pregnancy and childbirth; being forced to get married; and religious support of sex before marriage.³⁷ Open-ended questions will explore challenges during pregnancy, delivery and postpartum, their mental health needs and how they would like to be supported in addition to cultural practices around pregnancy.

Procedure

Participants will be recruited through information distributed at clinics, care groups and the MRH. A care group involves people from 8 to 12 households who meet regularly for peer education, counselling on nutrition and other health-related support. Interested adolescents meeting the eligibility criteria will be given an information sheet and consent form which will clearly outline the aim of the study, the procedures that will be involved, and the implications of participating in the study. The information sheet and consent form will be read to participants

in Chichewa by the research assistant if required. The voluntary nature of the study will be emphasised. Ethical approval has been granted to apply mature minor status to the adolescent mothers. Participants who are illiterate and not able to sign their name will be requested to use their thumb print as a signature (this is standard practice in Malawi). Administration of the survey will be conducted at, or close to the clinic in a quiet and private area. The survey will take approximately 45 min and will be administered in Chichewa by a trained research assistant.

Phase 3 qualitative (interviews and focus groups)

Study population for qualitative data collection

Semistructured interviews will be conducted with health-care workers (ie, nurses, clinical officers, community health workers) who will be recruited through snowballing sampling technique. In addition, FGDs with informal healthcare providers (two FGDs with health volunteers; two with church prophets and spiritual counsellors from church; and two with traditional healers, traditional birth attendants and herbalists) from within the catchment area of Mitundu. Participants will be purposively recruited and will include individuals who have the potential to provide rich, relevant and diverse information as they provide informal healthcare support to young mothers in the community. Data will be collected until data saturation is achieved; however, the numbers provided represent a guide.⁷⁴ Participants will be over 18 years, able to consent and able to understand the study information.

Instruments for qualitative data collection

A semistructured interview guide will be used to guide the discussion during data collection for in-depth interviews and FGDs. Questions will be derived from the research objectives, literature review, theoretical framework and the survey findings. In-depth interviews with health workers will be facilitated in English (as their official workplace language); however, participants will be allowed the flexibility to respond in both English and Chichewa to allow full expression of concepts. FGDs with informal healthcare providers will be conducted in Chichewa as their English literacy is likely to be low. Interviews and FGDs will be audio recorded. Interview guides will be pretested with purposively selected participants (n=4) at another rural health facility and its surrounding community within the Lilongwe District with similar social demographic characteristics as Mitundu.

Data analysis

Quantitative data will be analysed using SPSS software V.27. Descriptive statistics will be used to analyse the general characteristics of the study participants such as age, sex, educational level, socioeconomic status, number of children, and marital status, use of alcohol, gender-based violence, insight, support, history of mental illness, HIV status, and whether the pregnancy was planned or wanted. Means and SD will be calculated for overall scores and subgroups scores. Differences between categorical

and continuous variables will be analysed by χ^2 test and t-test, respectively. The differences in means of different groups will be analysed by t-test and analysis of variance. Multivariate statistics will be used to identify predictors of each common mental health disorder. Logistic regression will be used to identify association of factors to CMD. Statistical significance based on two-sided tests will be set at 0.05. The results of the regression models will be reported as ORs with 95% CIs.

Qualitative data from in-depth interviews and FGDs will be transcribed verbatim and analysed using thematic analysis. NVivo V.10 will be used to manage and organise data. A three-phased coding of open, axial and selective data will be conducted⁷⁵. Audio recordings of all interviews, transcripts and written notes obtained during an in-depth interview will be read and re-read by the lead author to facilitate familiarisation with the content, and discern overall sense and meaning and generate an initial list of ideas.⁷⁶ The generated data will be rechecked line by line to acquire common phrases, key words, statements and patterns that may produce codes.⁷⁶ The different codes will then be sorted into potential themes and collate them within the identified themes.⁷⁶ The lead author will review the presumption to identify if the units of meaning reflect the research. Additionally, to ensure truthfulness, and authentic account, the lead author and two other two authors persons will examine the aspects of experience within the context of the entire experience to verify if the suggested meaning is probable.⁷⁴

Phase 4: recommendations and dissemination

It is anticipated that the recommendations will inform policy and practice to enhance mental health outcome for adolescent mothers in Malawi. Results of the study will be presented at research conferences and peer reviewed publications. A copy of the results will be given to the Malawian Ethics Board National Committee on Research Ethics in the Social Sciences and Humanities, Ministry of Health and the facility where the study will be conducted. A presentation of results and study recommendations will be delivered to Ministry of Health Policy makers and other relevant stakeholders engaged in youth reproductive health services and maternal health in Malawi.

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Contributors This protocol paper describes a supervised doctoral research project, the results of which will be used by CPT to obtain a Doctor of Philosophy at Curtin University. All authors contributed significantly to the conceptualisation and design of the study. The study was conceived by CPT and it was critically reviewed and expanded by SB and LP. All authors approved the final manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics and Dissemination The research will be governed by the principles of beneficence, justice and respect and in accordance with the ethical principles of the Declaration of Helsinki. The researcher has been approved by Curtin University's Human Research Ethics Committee (CHREC) and NCRSH in Malawi.

Provenance and peer review Not commissioned; externally peer reviewed.

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