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A feasibility study of an educational program on obstetric danger signs among pregnant adolescents in Tanzania: A mixed-methods study

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ABSTRACT

Background: In Tanzania, adolescents have a high lifetime risk of dying from pregnancy and childbirth complications.
Objective: To determine the feasibility of an education program in improving knowledge of obstetric danger signs and promoting appropriate healthcare-seeking behavior, as well as encouraging the development of a peer network support group.
Methods: An embedded mixed-methods design was used. This research was a pilot study conducted in a health facility in rural Tanzania. Quantitative data was collected before and after the education program using questionnaires. Focus group discussion was used to collect qualitative data.
Results: 15 pregnant adolescents between 15 and 19 years of age participated. Their median age was 18.0 years (SD ± 1.19), and 66.7% were ≤18 years. There was a significant increase in the scores of knowledge of danger signs during pregnancy between the pre-test (M = 7.20, SD = 2.83) and the post-test (M = 9.07, SD = 1.67); t = 2.168, p = 0.048. There was a significant strong positive correlation between the healthcare-seeking behavior score and social support score variables [r = 0.654, p = 0.008]. The education program was feasible in terms of implementation, acceptability, and demand as indicated by its > 84% score. Four categories were identified from the qualitative data: "supportive family", "rejection and abortion", "support from peers", and "potential barriers to seek care".
Conclusion: The development of an education program particularly on obstetric danger signs was feasible and helpful for pregnant adolescents in Tanzania.

1. Introduction

There are about 16 million adolescent women aged 15–19 years who give birth every year worldwide, and 95% of these births are from low-income and middle-income countries (WHO, 2014). Pregnancy and childbearing among adolescents bring substantial social and economic costs in terms of immediate and long-term impacts on adolescent parents and their children (Martin, Hamilton, Osterman, Curtin, & Mathews, 2015). Complications during pregnancy and childbirth are the second leading cause of death in 15-year-old to19-year-old adolescent women globally (WHO, 2014).

Tanzania remains to be a low-income country and continues to be burdened with high adolescent fertility and maternal mortality rates (NBS & ICF, 2016). According to the 2015–2016 Tanzania Demographic Health Survey (TDHS), the percentage of pregnant adolescents or those who have already given birth has increased to 27% compared with the 23% reported in the 2010 TDHS. The average prevalence of pregnant adolescents in the community where the survey was conducted was estimated to be 30% (NBS & Macro, 2016). More than 43% of pregnant adolescents in Tanzania have been reported to give birth without professional care (UNICEF, 2011). Adolescent pregnancy is highest among girls from poorer households, living in rural areas, and those who have little or no education (Pradhan, Wynter, & Fisher, 2015).

Economic deprivation causes young girls to engage in transactional or unprotected sex to meet basic needs, or to improve their living conditions (McCleary-Sills, Douglas, Rwehumbiza, Hamisi, & Mabala, 2013; UNICEF, 2011). Consequently, pregnant adolescents become affected by several factors which include lack of social support, low knowledge of reproductive health, poverty, school dropout, sexual and physical abuse, and unfriendly health services (Madeni, Horiuchi, &

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Iida, 2011; Mbelwa & Isangula, 2012; Rukundo, Abaasa, Natukunda, Ashababehebwa, & Allain, 2015).

A number of youths from low-income families have insufficient information on reproductive health (Reina, Ciaravino, Llovera, & Castelo-Branco, 2010). Pregnant adolescents have low knowledge of obstetric danger signs compared with adult women (Pembe et al., 2009). Adolescent girls have limited access to information on reproductive health, and lack knowledge and motivation to use available health services (Aiko, Horiuchi, Shimpuku, Madeni, & Leshabari, 2016; Naigaga, Guttersrud, & Pettersen, 2015). Limited knowledge of obstetric danger signs has also been identified in a study on knowledge of obstetric danger signs and subsequent healthcare-seeking behavior in Tanzania (Mwilike et al., 2018). Mwilike et al. (2018) found that older women were 1.6 times more likely to have knowledge of danger signs than younger women (OR 1.609; 95% CI 1.05–2.46).

Adolescents often do not seek health services because of their lack of knowledge, as well as the inappropriate care they receive from service providers and the community (Hokororo et al., 2015; UNICEF, 2011). Atuyambe et al. (2008) concluded that adolescents had poorer healthcare-seeking behavior than adult women and experienced increased community stigmatization and violence, suggesting bigger challenges to adolescent mothers in terms of social support. Pregnant adolescents often face stigma and social exclusion (Hokororo et al., 2015; McIntyre, 2006). Nonetheless, unmarried adolescent women are more vulnerable than married adolescent women (Atuyambe, Mirembe, Johansson, Kirumira, & Faxelid, 2007).

An education program was developed to support vulnerable adolescent women from the challenges they are facing. As this is a new program that has been introduced into the health facility, its feasibility in terms of acceptability, implementation, and demand needs to be carefully assessed. The main objective of this study was to determine the feasibility of this developed education program in terms of increasing knowledge of obstetric danger signs, promoting healthcare-seeking behavior, and becoming part of a peer network support group among 15 pregnant adolescents between 15 and 19 years of age.

2. Methods

2.1. Design

An embedded mixed-methods design was used for this study. In a one-phase approach, qualitative data were embedded during the intervention phase when a researcher aimed to qualitatively examine the intervention process in addition to the quantitative outcome. Synthesizing complementary quantitative and qualitative results achieved a more complete understanding of the phenomenon (Creswell & Plano Clark, 2011). The main part of the present project was the quantitative part. The qualitative part was embedded to further clarify and explain the study variables.

2.2. Participants

The inclusion criteria for pregnant adolescents in this pilot study were as follows: (1) between 15 and 19 years of age and (2) can read and speak Swahili language.

The sample size was estimated to be 12 participants. This estimation was based on the recommendation for a feasibility study (Julious, 2005; Feeley et al., 2009). This was the initial phase of the study and similar studies were not found. Moreover, no scientific formula was used to estimate the sample size. Therefore, a comparison group was not included in this pilot study phase, although caution was exercised in the interpretation of findings. A control group will be included in a subsequent phase of a similar study.

2.3. Development of research instrument and focused group discussion (FGD) questions

2.3.1. Quantitative data

One questionnaire that was composed of four unique subscales was administered. The four subscales included *knowledge of obstetric danger signs*, *health-seeking behavior*, *social support*, and *women's perception about healthcare providers*. The pre-test questionnaire was used to collect sociodemographic data, and to assess knowledge, healthcare-seeking behavior, perception of social support, and women's perception about healthcare providers. This questionnaire was used before starting the education program. Immediately after the education program, the post-test questionnaire which assessed knowledge of obstetric danger signs, healthcare-seeking behavior, and evaluation of the program was administered. The questionnaire was pre-tested among five adolescents in another facility site which was different from the present study site to check for clarity and to ensure validity. Social support measurement was adapted from a validated questionnaire (Gee & Rhodes, 2008).

The items on *social support to pregnant adolescents* were developed by the researcher and the other items were modified from a previous research on social support and social strain measure for minority adolescent mothers (Gee & Rhodes, 2008). A total of 10 items about the perceptions of pregnant adolescents concerning social support were asked using a 5-point Likert-type scale: *(1) strongly disagree* to *(5) strongly agree*. The total score range was from 10 to 50. A higher score indicated adequate social support.

Items on pregnant adolescents' *perceptions of healthcare providers* (i.e., midwives, doctors, nurses, maternal child health aides) were also developed by the researcher after a thorough literature review. This part included 10 items answered using a 5-point Likert-type scale: *(1) strongly disagree* to *(5) strongly agree*. The total score range was from 10 to 50. A higher score indicated adequate support from healthcare providers.

There were 20 items about knowledge of obstetric danger signs. These items consisted of danger signs during pregnancy (10 items) and after delivery (10 items). These items were developed by the researcher in reference to the studies of Pembe et al. (2009) in rural Tanzania regarding women's awareness of danger signs of obstetric complications and in Ethiopia regarding knowledge of obstetric danger signs among pregnant women (Hailu, Gebremariam, & Alemseged, 2010). The items were scored as 1 for 'Yes', 2 for 'No', and 3 for 'Do not know'. If a woman encircled 'Yes' for each item, this means that she is aware of a particular danger sign.

The items on healthcare-seeking behavior of pregnant adolescents were developed by the researcher, and some items were extracted from the study of Pembe et al. (2009). A total of 10 items have been scaled using a 5-point Likert-type scale: *(1) never* to *(5) always*. The score range evaluated was from 10 to 50. A higher score indicated appropriate healthcare-seeking behavior.

As the present research was a feasibility study aiming at obtaining findings that would help determine whether an intervention is acceptable and implementable, a set of post-test questions and FGDs were used for program evaluation (Bowen et al., 2009).

There were ten items for program evaluation which were divided into the following three sections: (1) implementation of the program [six items], (2) acceptability of the program to pregnant adolescents [two items], and (3) demand for peer network support group [two items]. The post-test evaluation of the program focused on the following areas: 1) what the participants learned from the program, 2) usefulness of the program content, 3) convenience of time and venue, and 4) formation of a peer network support group.

2.3.2. Qualitative data

The interviewer had a total of four questions/statements that were developed by the researcher following a review of reports in the literature. The questions focused on social support from the community