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CLINICAL ARTICLE

Knowledge, acceptability, and use of misoprostol for preventing postpartum hemorrhage following home births in rural Ethiopia

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ABSTRACT

Objective: To assess knowledge of, and intentions to use misoprostol to preventing postpartum hemorrhage by women in a pastoralist community of the Somali Region of Ethiopia. **Methods:** A cross-sectional study enrolled women aged 15–49 years living in Adadle district, Ethiopia, between April 26 and May 3, 2012. A structured questionnaire was used to collect data on participants' knowledge of misoprostol and if they had any intention to use it in the future. Participants also detailed their preferred healthcare provider for administering misoprostol. **Results:** A total of 829 women were enrolled in the study. Among the participants, 42 (5.1%) had knowledge of misoprostol and 302 (36.4%) described themselves as being willing to use misoprostol in the future. Among respondents who were willing to use misoprostol in the future, traditional birth attendants were the preferred healthcare practitioners to administer it. **Conclusion:** Awareness of misoprostol was low in the study sample but willingness to use the drug was somewhat higher. Raising awareness and knowledge among communities and traditional birth attendants regarding the advantages of misoprostol is crucial to enhance uptake and reduce the incidence of postpartum hemorrhage.

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1. Introduction

Approximately 358 000 women die from complications of pregnancy and childbirth every year globally, with the majority of these deaths occurring in low-income countries [1]. It is a specific aim of the United Nations Millennium Development Goals to reduce the number of maternal deaths worldwide by 75% [2]. In low-income countries, particularly in Africa, more than a third of all maternal deaths are attributed to hemorrhage [3,4]. Empirical evidence has demonstrated that bleeding after childbirth is one of the primary causes of maternal mortality [5]. The greatest numbers of maternal deaths occur on the first day following delivery, highlighting the critical need for good-quality care during this period [6].

Despite ongoing efforts in low- and middle-income countries, there is a trend of decreasing delivery attendance by skilled health professionals who can avert maternal mortality; consequently, the maternal

death rate remains stagnant in resource-poor areas [7]. Effectively preventing and treating postpartum hemorrhage (PPH) is particularly difficult in areas where the majority of deliveries occur in patients' homes or in local clinics, where access to emergency services, obstetric care, and surgery is limited [8]. Without skilled delivery attendants, misoprostol may be the only medical tool that is available to manage PPH at home deliveries [9]. Misoprostol does not require any temperature controls for storage, making it suitable for use in the absence of skilled delivery attendants or when oxytocin is unavailable [10], such as in settings where most deliveries take place at home in the absence of skilled birth attendants [11].

In Ethiopia, a national survey reported that only 10% of deliveries occurred with the assistance of a skilled attendant [12]. The maternal-mortality rate in Ethiopia is 470 deaths per 100 000 live births, among the highest in the world. It has been estimated that 94% of deliveries occur at home in Ethiopia and that 10% of maternal deaths can be attributed to PPH [13].

There is a paucity of evidence regarding the application of misoprostol in Ethiopia in community-based settings [14–16]. To avert maternal deaths in remote and pastoral areas, it is critical to examine the

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application of misoprostol for the prevention of PPH. The aim of the present study was to assess, in a pastoralist community of the Somali regional state in Ethiopia, women's knowledge of misoprostol whether they would be prepared to use misoprostol in the future.

2. Materials and methods

The present cross-sectional study was conducted in Adadle district in the Gode zone of the Somali region of Ethiopia between April 26 and May 3, 2012. A structured questionnaire including open- and closed-ended questions was used to gather data on the knowledge and use of misoprostol among women aged 15–49 years. Any individuals who were critically ill or had mental illness were excluded. The study received ethical approval from the Somali regional health bureau and permission was also sought from the district health office. Study participants provided verbal informed consent to participate. Additionally, all study participants were advised to use local prenatal care and other maternity services.

Adadle district is one of eight districts in the Gode zone, located 18 km from Gode town. Adadle district has its own decentralized administrative hierarchies and it contains 14 kebeles (lowest administrative unit in the Ethiopian government structure) and 34 sub-kebeles/villages; the local population is pastoral in nature.

During data collection, there were 38 health extension workers operating across the 14 kebeles and 34 sub-kebeles of the study area; these are individuals who are deployed by the government to provide maternal-health services, including prenatal care, attending deliveries, postnatal care, and family-planning services, to the community. In addition to healthcare facilities operated by the district government, organizations including Medical Emergency Relief International (MERLIN) operate mobile clinics that provide maternal and neonatal health care to rural communities. Additionally, MERLIN and Save the children UK-Ethiopia supply clean delivery kits through community volunteers and healthcare facilities; these kits contain clean gloves, a surgical blade, cord tie, clean sheets, plasters, and one tablet of misoprostol (600 µg; Sigma Pharmaceutical, Cairo, Egypt) for use immediately after delivery.

Study participants answered a structured questionnaire that included questions regarding reproductive health, participants' knowledge of misoprostol, and whether participants would consider using misoprostol in the future. The questionnaire was prepared in English before being translated to Somali. Prior to data collection, the questionnaire was tested to standardize the flow, content, and translation accuracy. Sub villages that were not included in the main study were included in this pre-testing and amendments were made to the questionnaire accordingly.

Data collection was performed by 14 data collectors who were health professionals with a background in nursing and public health. All data collectors completed an intensive training course lasting 2 days, providing training on data collection techniques, quality control, and ethical issues. The data collection process was overseen by three supervisors with a researcher (Z.T.) providing general oversight.

Several measures were employed to ensure the collected data were of high quality. Questionnaire pretesting and data-collector training were performed to take the culture, beliefs, and languages of the study area into account. Additionally, daily review and editing of the questionnaires was performed by the supervisors to identify errors, omissions, and inconsistencies in the questionnaire.

The necessary sample size was calculated using a population-proportion formula for cross-sectional studies. The following parameters were considered: a misoprostol-use rate of 50% (no previous studies have reported the prevalence of misoprostol use in the study area) and a two-tailed precision level of 5%, corresponding to a 95% confidence level. Including a design effect of two and assuming a non-response rate of 10%, a final necessary sample size of 844 was calculated.

A multi-stage random-sampling technique was used to select the study participants from the kebeles and sub-kebeles in the study area. Kebeles were stratified based on their agro-ecological status. Kebele-

filtering resulted in the exclusion of a number of kebeles from south Adadle. From the 14 kebeles, eight were selected by a lottery method for inclusion. The total number of study households to be extracted from each kebele was divided among the eligible kebeles based on population sizes. Once the number of households to be included from each kebele was calculated, households with women aged 15–49 years were identified in the household lists from health extension workers' logbooks of sub villages/sub kebeles, and simple random sampling was used to determine the households to be included.

Data entry, cleaning, recoding, categorization, and analysis were performed using SPSS version 19 (IBM, Armonk, NY, USA). Descriptive statistics were calculated to assess participant characteristics and to calculate rates and ratios for the various quality indicators.

3. Results

The present study enrolled 829 women aged 15–49 years (Table 1). The mean \pm SD age of participants was 29.4 ± 7.4 (inter-quartile range 25.0–35.0); 398 (48.0%) participants were aged 25–34 years, and 237 (28.6%) were aged 35–49 years. In total, 710 (85.6%) participants were married at the time of answering the study questionnaire. The majority of the participants were described their religion as Muslim and were of Somali ethnicity. The most common occupations among the participants were farmer and housewife, and a high proportion of the participants were illiterate. The sociodemographic characteristics of the participants are detailed in Table 1.

Among the respondents, 42 (5.1%) were aware of misoprostol (Table 2); among these individuals, 34 (81%) had seen or heard of a woman receiving misoprostol following the delivery of a neonate but prior to the delivery of the placenta. The health professionals most commonly reported to have administered misoprostol to patients undergoing delivery were doctors and nurses. Very few participants reported that they had seen or heard of health extension workers or traditional birth attendants having administered misoprostol (Table 2).

In the study group, 302 (36.4%) reported that they would be willing to use misoprostol in the future; among these individuals, 123 (40.7%) reported that they would prefer misoprostol to be administered by a traditional birth attendant (Table 2).

Table 1
Sociodemographic characteristics of participants (n = 829).

Variable	No. (%)
Age, y	
15–19	32 (3.9)
20–24	162 (19.5)
25–34	398 (48.0)
35–49	237 (28.6)
Marital status	
Single	63 (7.6)
Married	710 (85.6)
Widowed	25 (3.0)
Divorced	31 (3.7)
Ethnicity	
Somali	825 (99.5)
Oromo	3 (0.4)
Gurage	1 (0.1)
Religion	
Muslim	826 (99.6)
Christian	3 (0.4)
Occupation	
Livestock herding	80 (9.7)
Farmer	327 (39.4)
Government employee	19 (2.3)
Student	4 (0.5)
Housewife	267 (32.2)
Self-employed	60 (7.2)
Unemployed	72 (8.7)
Education level	
Illiterate	714 (86.1)
Literate	115 (13.9)

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