ORIGINAL RESEARCH ARTICLE

Efficacy of self-administration of medication abortion for first trimester of pregnancy in Ethiopia: A multicenter prospective cohort study

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Abstract

Medical abortion with mifepristone and misoprostol, or misoprostol alone, can be safely administered in clinics or self-managed at home up to nine weeks of gestation. We conducted a prospective multi-center cohort study among women and girls seeking pregnancy termination at six purposively selected healthcare facilities or medication abortion dispensers in Hawassa City, Southern Ethiopia, from March 16, 2024, to January 15, 2025. We grouped the participants in two cohorts: self-administration of medication abortion (exposure group) and health-personnel provided medication abortion care (control group). Data were collected using the Kobo Toolbox tool and analyzed with SPSS version 26. A total of 554 participants (341 participants in the exposure group and 213 participants were in the control group) were included in the final analysis. Effectiveness was measured as the proportion of women who had successful medication abortion without further requirement of addition procedure to complete the abortion. We found self-administration of medication abortion at ≤12 weeks as effective as health-personnel provided medical abortion. After controlling for gestational age, medication abortion regimen, and parity self-administration of medication abortion was as effective as health-personnel provided medication abortion (AOR= 1.13, 95% CI: 1.07–1.20). Write a conclusive statement. *(Afr J Reprod Health 2025; 29 [9s]: 60-66).*

Keywords: Self-care; self-management; medical abortion; low-middle income country; Ethiopia

Résumé

L'avortement médicamenteux par mifépristone et misoprostol, ou le misoprostol seul, peut être pratiqué en toute sécurité en clinique ou autogéré à domicile jusqu'à neuf semaines de grossesse. Nous avons mené une étude de cohorte prospective multicentrique auprès de femmes et de jeunes filles souhaitant interrompre leur grossesse dans six établissements de santé ou dispensaires d'avortement médicamenteux sélectionnés à Hawassa, dans le sud de l'Éthiopie, du 16 mars 2024 au 15 janvier 2025. Nous avons regroupé les participantes en deux cohortes : auto-administration de l'avortement médicamenteux (groupe d'exposition) et soins d'avortement médicamenteux prodigués par le personnel de santé (groupe témoin). Les données ont été collectées à l'aide de l'outil Kobo Toolbox et analysées avec SPSS version 26. Au total, 554 participantes (341 participantes dans le groupe d'exposition et 213 participantes dans le groupe témoin) ont été incluses dans l'analyse finale. L'efficacité a été mesurée par la proportion de femmes ayant bénéficié d'un avortement médicamenteux sans intervention supplémentaire. Nous avons constaté que l'auto-administration d'un avortement médicamenteux à ≤ 12 semaines était aussi efficace que l'avortement médicamenteux pratiqué par le personnel de santé. Après contrôle de l'âge gestationnel, du schéma d'avortement médicamenteux et de la parité, l'auto-administration d'un avortement médicamenteux était aussi efficace que l'avortement médicamenteux pratiqué par le personnel de santé (ORA = 1,13, IC à 95 % : 1,07–1,20). Rédiger une conclusion. *(Afr J Reprod Health 2025; 29 [9s]: 60-66).*

Mots-clés: Autosoins ; autogestion ; avortement médicamenteux ; pays à revenu faible ou intermédiaire ; Éthiopie

Introduction

Abortion is a safe and effective procedure, which can be undertaken by providers with limited medical training (nurses and midwives), and in the case of medical abortion, by women themselves.[1] Both surgical and medical methods of abortion in the first trimester are safe and effective with success

rate as high as ≥95%.[2] For medical abortion in this trimester, combined regimen (mifepristone plus misoprostol) is more effective than single-agent (misoprostol-only) regimen.[3]

Self-care is the ability of individuals, families, and communities to promote health, prevent disease, maintain health, and manage illness and disability with or without a health care provider .[4] Increasing evidence indicates that women are attempting their own abortions outside the formal health care system. For example, in the US a cross-sectional study of 7022 women found that approximately 7% of US women reported having attempted self-management of abortion in their lifetime.[5] A national family health survey (NFHS-4) of 2015–2016 in India indicated that women in India were using safe methods to self-manage abortions, which supports the hypothesis that self-managed abortion can improve access to abortion and reproductive choice without increasing risk.[6] Increasing knowledge and clarifying values among all abortion care providers, including clinic staff, regarding self-management of abortion is vital.[7]

For medical abortion at ≤12 weeks, the new WHO abortion care guidelines recommend the option of self-management of the medical abortion process in whole or any of the three component parts of the process: self-assessment of eligibility, self-administration of abortion medications, and self-assessment of completion of abortion.[8] In Ethiopia safe abortion care is permitted by law up to 28 weeks for certain indications including rape/incest, incurable fetal anomaly, and being minor(less than 18 years of age).[9] Both methods of abortion are provided in Ethiopia, surgical abortion up to 24 weeks and medication abortion up to 28 weeks of gestation.[10] This study sought to determine the efficacy of self-management of abortion compared to clinician-provided first trimester medication abortion at gestational age less than or equal to 12 weeks at six centers in South Ethiopia.

Methods

Study design, study setting, and period

We conducted a multicenter prospective cohort study of women who had self-management of abortion at 12 weeks or less in 6 centers in Hawassa (Family guidance association Hawassa, Mari stopes Ethiopia-Hawassa branch, Hawassa University hospital and on catchment health center, and a pharmacy in the city of Hawassa), over one-year (January- December 2024). Self-management of abortion was operationalized as self-administration of abortion medications (mifepristone and/or misoprostol) while medical abortion provided by abortion providers is designated as health personnel-provided. The primary outcome of the study was abortion success (no requirement of additional intervention to complete abortion). Secondary outcomes were total bleeding period and abortion pain medication utilization.

Our null hypothesis was there is no difference in safety, efficacy and acceptability between self-administered (exposed group) and health- personnel provided medication abortion administration (control group) for pregnancy less than 12 weeks of gestation. We grouped the study subjects in two cohorts: exposed group-women who had self-management of abortion at 12 weeks or less, and controls were matching cases who clinician had provided first trimester medication abortion at similar gestational age. The groups were matched in a ratio of 0.6 (exposed: control groups) based on the tendency of more self-administration during piloting phase). Apart from the abortion method utilized, abortion care profile of the participants were similar - all had medication abortion at gestational age of 12 or less (Figure-1). Participants were given the choice between self-administration and facility administration of medical abortion, including the preferred route of misoprostol administration. Women who chose self-administration of medication were identified at the time of enrollment in the study prospectively as they opted for that method of abortion and this data was recorded in the data collection questionnaire and they were followed accordingly to collect the outcomes of abortion. The study team's role was to explain these options, including how and when to take misoprostol, as well as pain management and the management of potential adverse effects based on routine service guidelines. For facility administration of medication abortion, a regimen of first trimester medication abortion mifepristone 200

Table 1: Summary of the intervention and control groups

Gestational age	Intervention group	Control group
Gestational age less than 90 days (< 12 weeks)	Women take both mifepristone and misoprostol without healthcare provider supervision, usually at home	Women take both mifepristone and misoprostol with the assistance or supervision of a healthcare provider, usually at the healthcare facility or pharmacy
	Women take misoprostol-only without healthcare provider supervision, usually at home	Women take misoprostol-only with the assistance of the healthcare provider, usually at the healthcare facility or pharmacy
	Women take mifepristone in the presence of a healthcare provider and subsequently takes misoprostol without healthcare provider supervision	

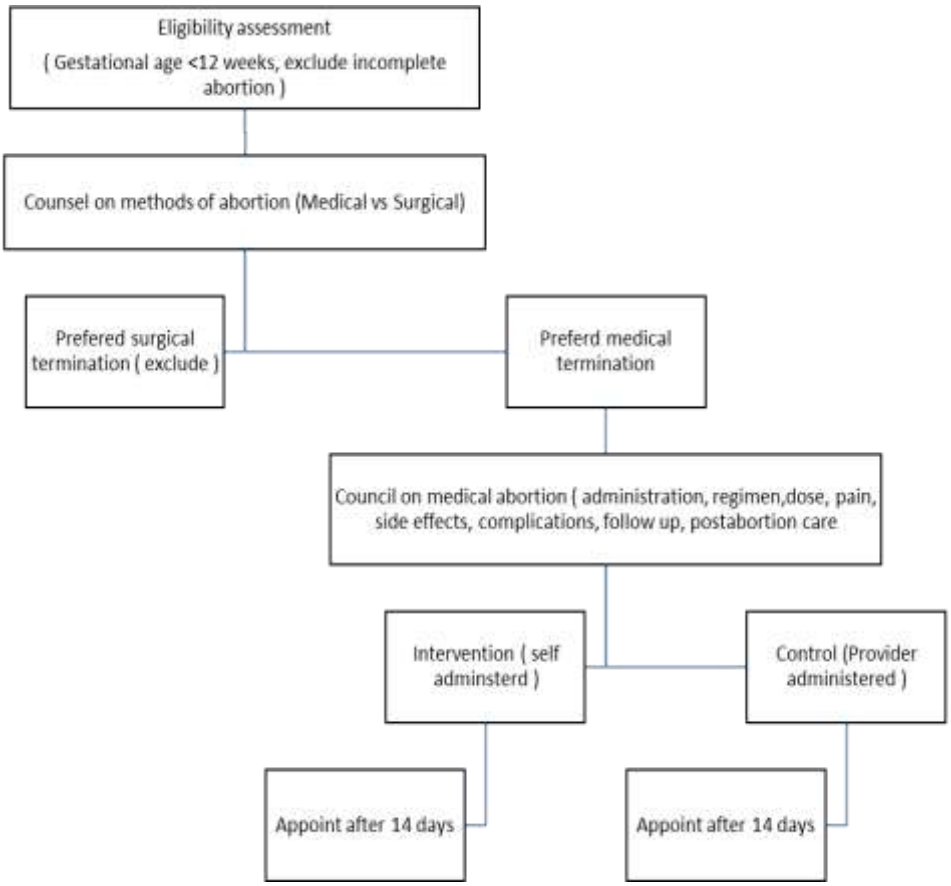

Figure 1: Participant Flow-chart

mg oral followed by misoprostol 800 micrograms sublingual or buccal were provided. Information on abortion methods was obtained by directly interviewing abortion clients and reviewing safe abortion care information sheets. Table 1

The inclusion criteria were gestational age at less than or equal to 12 weeks, self-management abortion or clinician-provided abortion, medication abortion using mifepristone plus misoprostol regimen or misoprostol-only regimen, minors, with

or without congenital anomalies, with or without prior uterine scar, and volunteering to participate in the study. Exclusion criteria were incomplete data, incomplete abortion, and women with underlying medical conditions. For all the study participants, intervention and control, the several lists of activities were performed as demonstrated in Figure 1.

Data collection

Data were collected prospectively on ODK. We collected socio-demographic data, abortion care characteristics and abortion care outcomes.

Sample size and sampling procedure

Sample size was determined by considering abortion success rate of 96% for first trimester medication abortion(controls) adopted from previous study[11] , assuming at least 90% success rate for the intervention group, 80% power of the study, two sided confidence interval of 95% , and assuming 10% lost to follow up. The final calculated sample size was 693. No systematic random sampling technique was employed.

Data analysis

Data were managed using SPSS version 23. Chi-squared test, Fisher-exact test, and multivariate regression analysis were employed as appropriate. P-value less than 0.05 and adjusted odds ratio (AOR) with 95%CI interval were used to present results significance.

Ethical considerations

Formal Ethical clearance was obtained from Hawassa University College of Medicine and Health Sciences IRB (Ref. No: IRB/039/16 Date of approval: 18/12/2023) and written informed consent was obtained from all study subjects. Data anonymity and patient confidentiality was maintained throughout the data collection.

Results

A total of 693 participants were enrolled in the study, and after excluding 149 from them who dropped out of the study, 554 participants (341participantsin self-management group representing 61.6% and 213 participants in the health personnel-provided group accounting for 38.4%) were included in the final analysis. There was significant difference in gestational age distribution between self-management group and that health personnel-provided group (Table 2). Sixty percent (206/341) of women who had self-management had abortion at gestational age less than 7 weeks which almost twice that of in those who provided at-facility care (31%, 66/213), p-value <0.01. Similarly, a higher proportion of women in the self-management group had utilized mifepristone plus misoprostol regimen compared to those in the health personnel-provided group (98.8 % vs 94.4% , p<0.01).All women were from urban in the self-management group compared to 78.4% (167/213) in the at-facility care groups, p<0.01.

Table 2: Baseline characteristics of women who had first trimester medication abortion using self-management versus health personnel-provided at ≤12 weeks, n=554

Variables	Category	Self-management	At facility care	Total	P-Value
Maternal age	Mean (SD)	24.7±4.3	23.1÷3.7	24.1±4.2	0.70
Parity category	Nulliparous	37(20.3%)	3(5.2)	40(16.7)	<0.01
	Parous	304(79.7)	210(94.8))	92(38.3)	
Gestational age	<7 weeks	206(60.4)	66(31)	272(49.1)	<0.01
	7-8.9	107(31.4)	91(42.7)	198(35.7)	
	>=9	28(8.2)	56(26.3)	84(15.2)	
Medication regimen utilized	Misoprostol-only	4(1.2)	12(5.6)	16(2.9)	<0.01
	Mifepristone plus misoprostol	337(98.8)	201(94.4)	538(97.1)	
Residence	Rural	0(0)	46(21.6)	46(8.3)	<0.01
	Urban	341(100)	167(78.4)	508(91.7)	

Table 3: First trimester medication abortion outcomes between self-management and health-personnel-provided medication abortion at ≤12 weeks in Ethiopia, 2024

Variables	Category	Self-management	Health personnel-provided	Total	P-Value
Outcome assessment methods	In person	256(75.1)	168(78.9)	424(76.5)	0.30
	Phone-call	85(24.9)	45(21.1)	130(23.5)	
Total duration of bleeding in days	Mean (SD), M	7.3(±4.6)	7.7(±5.1)	7.5(±4.8)	0.14
	< 6 days	164(48.1)	89(41.8)	253(45.7)	
	>=6 days	177(51.9)	124(58.2)	301(54.3)	
Utilization of pain management	no	62(18.2)	121(56.8)	183(33)	<0.01
	yes	279(81.8)	92(43.2)	371(67)	
Abortion success	Successful	330(96.8)	182(85.4)	512(92.5)	<0.01
	Failed	11(3.2)	31(14.6)	42(7.5)	

Table 4: Factors associated with first trimester medication abortion success rate at ≤12 weeks, Ethiopia, 2024

Variables	Category	AOR (95%CI)
Abortion method	Self-management of abortion	1.13(1.07-1.20)
	At facility care	Ref
Medical abortion Regimen	Misoprostol-only	0.87(0.69-1.11)
	Mifepristone plus misoprostol	Ref
Gestational age	<7 weeks	0.31(0.12-0.81)
	7-8.9	0.73(0.33-1.6)
	>=9	Ref

On bivariate analysis, there was no difference in the mean duration of bleeding in days (7.3±4.6 days in the self-management group vs 7.7±5.1 days in the health personnel-provided group, p=0.14) (Table 3). More women in the self-management group utilized abortion pain medication than in the health personnel-provided group (81.8% vs 43.2%, p <0.01. Abortion success rate was higher in the self-management group compared to the health-personnel provided group (96.8% vs85.4%, p<0.01). However, after controlling medical abortion regimen and gestational age (Table 4), self-management of first trimester abortion (AOR=1.13, 95%CI=1.07-1.20) was as equally effective as at health personnel-provided medication abortion.

Discussion

In this study, self-management of abortion (self-administration of abortion medication) was found as effective as health personnel-provided medication abortion at gestational age of less than or equal to 12 weeks with no difference in the mean duration of bleeding in days. First-trimester abortion is a common and safe procedure.[12] Six out of 10 (61%) of all unintended pregnancies, and 3 out of 10 (29%) of all pregnancies end in induced abortion. According to the 2022 WHO recommendations for self-care interventions, in early pregnancy, medical abortion can be self-managed. The choice of health worker or management by the woman, girl or other pregnant person, and the location of service provision depends on the values and preferences of the pregnant person, available resources and the national and local context .[13] A qualitative study of 40 physicians from the US found that physicians consider medication abortion without clinical oversight as safe and effective intervention.[14]

In low-middle income countries (LMICs) local evidence on safety and efficacy of self-management of medication abortion is highly sought.[15] Self-management of abortion holds particular promise for revolutionizing people's access to quality reproductive care in Africa, where the burden of abortion-related mortality is the highest. The region's articulation of the rights to dignity and privacy in health care including constellation of enabling environment for self-management of abortion is vital.[16] Beyond abortion care, self-management of abortion promotes

positive reproductive health behaviors of women after abortion.[17] A recent quasi-experimental research conducted in rural Egypt revealed that 87.1% of the study group had positive reproductive health behavior post-intervention(introducing self-management of abortion) compared to 28.6 % pre-intervention(when there was no self-management of abortion) in rural Egypt.[18] A recent multicenter study found overall 51% of facilities in the Nigerian states and 32% in the Indian state offered medication abortion pills in pharmacies indicating wider introduction of self-management of first trimester abortion in LMICs.[19] Another large study(n=807) that aimed at determining the effectiveness of self-management of abortion in Nigeria reported more than 95% effectiveness.[20] Consistent with these findings, self-management of abortion in the present was found be highly effective. Both abortion methods, self-management (AOR=1.13, 95%CI=1.07-1.20) and health personnel-provided) were equally effective. Moreover, there was no difference in the duration of bleeding in days (mean 7.3±4.6 days in the self-management group was not different from mean 7.7±5.1days in the health personnel-provided group, p=0.14).However, more women in the self-management group utilized abortion pain medication than in the health personnel-provided group (81.8% vs 43.2%, p <0.01). Abortion success rate of more than 95% in the self-management group in our study is consistent with findings of another a mixed methods study conducted in Bolivia between September 2019 and July 2020, which aimed to assess the reach, outcomes, and acceptability of the self-management of abortion. Among the 302 participants included in the study and who self-managed their abortions, 99% reported having a successful abortion.[21] Similarly, a large multicenter study (n= 264) on self-management of abortion between 9-16 weeks conducted in Nigeria, Argentina, and southeast Asia documented abortion success rate of 89.4%.[22]Recently, a systemic scoping review reveled that studies on self-managed medication abortion documented high-levels of effectiveness this health care intervention.[23]

Strengths of our study include large sample size and being among the first study to report on self-management of abortion from low-middle income countries. This strength have a wider implication for practice change across low-middle income settings from health policy point of view. Currently, despite existence of strong evidence (discussed above) on self-management of abortion, this practice is not widely adopted in low-middle income countries. Results of our study can be adopted for scaling-up self-management of abortion practice across Ethiopia and other Sub-Saharan Africa setting. The main limitations of our study are lacking analysis of patient acceptability of abortion methods and long-term psychological outcomes. The fact that patients who sought self-administration of medication abortion were given information about the methods and procedures of abortion by the research team is the other limitation of the study.

In conclusion the results of this study indicate that self-management of abortion is as equally effective as health personnel-provided (at facility-care). This effective health intervention should be provided as one option of abortion care for abortion clients presenting at less than or equal to 12 weeks in low-middle income countries, for creating wider access to first trimester abortion care as well as a good practice of reproductive health rights.

Authors contributions

AG, DH, MW, MA, SA, AFS, and GB developed the concept and design of the project. AG, DH, , MW, MA, SA , and GB contributed the data collection and data analysis. AFS and AG manuscript write-up. All authors checked the manuscript for intellectual contents**.** The final manuscript is approved for submission by all authors.

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