


# BMJ Open Magnitude of late presentation for induced abortion care services and the associated factors among reproductive-age women at selected hospitals in the South Gondar district of Northwest Ethiopia in 2023: a multicentred, cross-sectional study

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**To cite:** Dagnaw EH, Berta M, Cherkos EA, *et al*. Magnitude of late presentation for induced abortion care services and the associated factors among reproductive-age women at selected hospitals in the South Gondar district of Northwest Ethiopia in 2023: a multicentred, cross-sectional study. *BMJ Open* 2024;**14**:e081946. doi:10.1136/bmjopen-2023-081946

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2023-081946>).

Received 10 November 2023  
Accepted 04 September 2024



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## ABSTRACT

**Objective** The objective of the study was to determine the magnitude of and the factors associated with late presentation for induced abortion care services at hospitals in the South Gondar district of Ethiopia.

**Design** This study employed an institution-based, cross-sectional design.

**Setting** The study was conducted at five hospitals in the South Gondar district of Ethiopia.

**Participants** A total of 381 women recruited through systematic random sampling techniques from October 2022 to February 2023 participated in the study. All women presenting for safe abortion care services at selected hospitals during the data collection period were included, whereas induced abortion care service due to the pregnancy being a high risk to maternal health or at high risk for fetal anomaly were excluded from the study. Data were collected at the abortion clinic at the time of presentation through face-to-face interviews using a pretested and structured questionnaire.

**Outcome measures** The magnitude of and the factors associated with late presentation for induced abortion care service were assessed in the study.

**Statistical analysis** The collected data were entered and coded using EpiData V.4.6, and SPSS V.25 was used for analysis. Binary logistic regression analyses were undertaken to identify the factors associated with the outcome variable. The level of significance was declared at a p value of <0.05.

**Results** The magnitude of late presentation for induced abortion care service was 21.5% (95% CI 17.7, 25.7). Being a rural resident (adjusted OR (AOR) = 1.934; 95% CI 1.010, 3.703), history of use of contraceptives (AOR=0.462; 95% CI 0.227, 0.938), having irregular menstrual cycles (AOR=5.132; 95% CI 2.648, 9.944), delayed decision for termination (AOR=8.196; 95% CI 3.996, 16.808) and pregnancy resulting from incest (AOR=2.549; 95% CI 1.286, 5.052) were factors significantly associated with late presentation for induced abortion care.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study was conducted at the primary hospitals of the district, where most adolescent girls live and seek care.
- ⇒ It attempts to demonstrate the burden and magnitude of late presentations for induced abortion care.
- ⇒ Since abortion law in Ethiopia is semirestricted and induced abortion is a very sensitive issue in the area, social desirability bias may exist.
- ⇒ Likewise, as with other cross-sectional studies, the study may not be able to infer the cause and effect relationships between the outcomes.
- ⇒ Despite these limitations, the study is of paramount public health importance.

**Conclusion** Increased awareness and education in rural communities related to late presentations for induced abortion and the associated complications may facilitate timely decision-making in the context of induced abortion, resulting in reduced morbidity and mortality.

## INTRODUCTION

### Statement of the problem

According to WHO's definition in developing countries, abortion is the expulsion of the fetus and membrane before the gestational age of 28 weeks or less than 1000 g, whereas in developed countries it is expulsion of the fetus and membrane before 20 weeks or less than 500 g.<sup>1</sup> An abortion that occurs within 12 completed weeks of gestation is considered a first-trimester abortion, whereas an abortion beyond 13 weeks is termed a second-trimester abortion.<sup>2</sup>

Worldwide, an estimated 56 million induced abortions occur each year, of which 49.4 million occur in developing countries.<sup>3</sup> The annual rate of induced abortion has significantly decreased in developed countries, while it remained high in developing countries.<sup>4</sup> Despite the majority of abortions being performed in the first trimester, however, 10%–15% of terminations of pregnancies take place late in the second trimester worldwide.<sup>5</sup>

Abortion care is one of the fundamental aspects of women's reproductive healthcare services.<sup>6</sup> In Ethiopia, the demand for induced abortion is high in the rural community, which may be attributed to low contraceptive use and increasing experience of unwanted pregnancies.<sup>7</sup> Moreover, 50% of women in the country presenting in the second trimester were suffering from an incomplete abortion. In the Amhara Region, an estimated 45 812 abortions were performed at health facilities in 2014, while around 106 325 abortions occurred outside health facilities in the same year.<sup>8</sup>

The deliberate termination of pregnancy is one of the most controversial issues in legal discourse. In 2005, Ethiopia took important steps to protect women's reproductive health by semirestricting the laws on induced abortion. These abortion laws include pregnancies considered high risk to maternal health, pregnancies at high risk for fetal anomaly (including incompatible with life) or pregnancies resulting from incest or rape, including pregnancy in childhood.<sup>9</sup>

For two decades, the government of Ethiopia and different local and international non-governmental organisations (NGOs) have placed great emphasis on these services by providing special training to healthcare providers, establishing induced abortion services at the primary health facility level free of charge and providing medications and materials for the service.<sup>10</sup>

While second-trimester abortion accounts for a small percentage of all induced abortions, it is associated with two-thirds of the major abortion-related complications and half of the abortion-related mortality.<sup>11</sup> Evidence has demonstrated that late-trimester-induced abortion is associated with severe complications compared with early-trimester-induced abortion.<sup>12</sup> These include cervical laceration, heavy bleeding, infection and uterine perforation to the extent that the patient would require hysterectomy and blood transfusion, as well as secondary infertility as a long-term complication.<sup>13 14</sup> Some women may also experience post-traumatic stress disorder, resulting in thoughts of feticide, compared with those who sought termination of pregnancy at an earlier gestational age.<sup>15</sup> There is also high likelihood of prolonged hospital stays and high costs incurred among women seeking abortion care late in the pregnancy period.<sup>16 17</sup>

While a safe first-trimester abortion is available at the primary healthcare level, gynaecological admissions for late second-trimester abortion remain high, with the risk of complications inevitably higher. The aim of this study, therefore, is to determine the magnitude of and the factors associated with late presentation for safe induced

abortion care services in South Gondar district public hospitals.

### Ethical declaration for publication

A formal letter of cooperation was written to each hospital from the School of Midwifery, and permission from the hospitals was obtained from the hospital administrators. Written permission letters were also obtained from the hospital managers and ward coordinators in the study setting. Before data collection, written informed consent was obtained from the study participants independently, and the objectives and purpose of the study were briefly explained. In addition, they have been told their participation was purely voluntary and that it will be kept strictly confidential and used for research purposes only.

### Objectives

- ▶ To determine the magnitude of and the factors associated with late presentation for induced abortion care services in South Gondar district hospitals, Northwest Ethiopia, in 2022/2023.
- ▶ To assess the magnitude of late presentation for induced abortion care services in South Gondar district hospitals, Northwest Ethiopia, in 2022/2023.
- ▶ To identify the factors associated with late presentation for induced abortion care services in South Gondar district hospitals, Northwest Ethiopia, in 2022/2023.

## METHODS

### Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting or dissemination plans of the research.

### Study design, period and area

A health facility-based, cross-sectional study design was employed from October 2022 to February 2023 at selected hospitals in the South Gondar district. The South Gondar district is one of the 13 administrative zones in the Amhara regional state of Ethiopia. Debre Tabor is its capital town, located 665 km and 105 km from Addis Ababa and Bahir Dar, respectively. According to the Central Statistical Agency's 2014–2017 projection, the total population of the study area was 2 484 929 in 2017, of whom 1 257 323 (50.6%) were male.<sup>18</sup>

In the South Gondar district, there are about 10 government hospitals, found in the towns of Debre Tabor, Addis Zemen, Mekane Eyesus, Andabet, Ebinat, Arb Gebeya, Nefas Mewcha, Worota, Anbesamie and Wegeda. In addition, there are 98 government health centres, 74 private medium clinics and 1 gynaecological and obstetrics specialty clinic, serving more than three million people.<sup>19</sup>

### Source population

Source population were women attending safe induced abortion care services at selected hospitals in the South Gondar district.

### Study population

Study population were women attending safe abortion care services at selected hospitals in the South Gondar district during the data collection period.

### Inclusion criteria

The study included all women presenting for safe abortion care services at selected hospitals during the data collection period.

### Exclusion criteria

Termination of pregnancy considered high risk to maternal health or pregnancy at risk for fetal anomaly was excluded. A mother diagnosed with pre-eclampsia plus hemolysis elevated liver enzymes and low platelets (HELLP) syndrome at 22+1 weeks and a mother who sought termination due to their fetus having anencephaly (neural tube defect) at 20+4 weeks due to the above exclusion criteria.

### Sample size determination, sampling technique and procedure

The sample size was calculated using the prevalence (single proportion) and associated factors (double proportion) obtained from other scientific research. The sample size for the first objective was calculated using the single population proportion formula, considering the following assumptions: prevalence of women having abortions in the second trimester of 29.6%,<sup>20</sup> a 95% CI level and a 5% margin of error. The final sample size obtained using this technique was 248, after adding a 10% non-response rate. For the second objective, a sample size of 405 was obtained using Epi Info V.7.2.5.0 software and considering a 10% non-response rate. By comparing the two sample sizes, the larger sample (obtained through the double population formula) was taken. From a total of 10 hospitals in South Gondar Zone, 5 were randomly selected for provision of first-trimester and second-trimester induced abortion services (Debre Tabor, Addis Zemen, Nefas Mewucha, Mekan Eysus and Wogeda hospitals). The total sample size was allocated to each of the five hospitals proportional to the average monthly client flow reviewed from the registration book. Using a systematic random sampling technique, the study participants were recruited from clients who requested induced abortion, where every three women from Addis Zemen and Debre Tabor ( $k=3$ ) and every two women from Nefas Mewucha, Mekan Eyesus and Wogeda hospitals ( $k=2$ ) were chosen during the data collection period until the required sample size was obtained from each hospital. The first participants were obtained by random technique from 1, 2 and 3 (for those with  $k=3$ ) and from 1 and 2 (for those with  $k=2$ ), then every  $k$ th participant was included in the study.

### Variables

The dependent variable is late presentation for safe abortion care.

### Operational definition

- ▶ Late presentation for safe termination of pregnancy: women presenting for safe termination of pregnancy after 12 weeks of gestational age.<sup>21</sup>
- ▶ Delayed decision for termination: delayed decision for induced abortion after a diagnosis of pregnancy of 1 week or more.<sup>22</sup>
- ▶ Failed attempt: a procedure or medication taken to terminate the pregnancy is performed or prescribed by a healthcare professional; however, the pregnancy continued.<sup>23</sup>
- ▶ Good awareness of signs and symptoms of pregnancy: women who described two or more symptoms of pregnancy were considered to have good awareness.<sup>24</sup>

### Data collection

Data were collected at the abortion clinic at the time of presentation through face-to-face interviews using a pretested and structured questionnaire. The structured questionnaire was prepared in the local language, Amharic, to increase readability and understanding.<sup>25–27</sup> The data collection tool comprised questions on the study subjects' sociodemographic characteristics; reproductive, obstetrics and gynaecological characteristics; knowledge and behavioural factors; and health services and health system factors. The questionnaire was pretested to check for response, language clarity and appropriateness. A pretest was done outside the study area. At the end of the pretest, depending on its outcome, correction measures, such as arrangements of the questions, were undertaken.

### Data quality control

The questionnaire was prepared in English and translated to Amharic (the local language) and then back to English to maintain consistency of the tool. Training on the purpose of the study and techniques for data collection was provided for 1 day to five BSc midwife data collectors and two supervisors. The trained data collectors were supervised during the data collection, and each questionnaire was checked for completeness weekly. Data entry was conducted by a single computer. Close supervision during the period of data collection ensured consistency in completing the questionnaire. The questionnaire was pretested to check for responses, language clarity and appropriateness, with a pilot study conducted on 20 women presenting for induced abortion care at Felege Hiwot Specialized Hospital to assess whether the questions would generate useful and meaningful data. This allowed for amendment/improvement of the final version.

### Data processing and analysis

Data were checked for completeness and were entered and coded using EpiData V.4.6.0 and then exported to SPSS V.25.00 for analysis. Data cleaning and cross-checking were done before data analysis. Both descriptive and analytic statistical procedures were done. Binary logistic regression analysis was used to identify statistically

significant independent variables and variables with a p value less than 0.25. A multivariable logistic regression was conducted for controlling the effect of confounders. In the multivariable logistic regression analysis, a p value of <0.05 with a 95% CI for adjusted OR was used to determine significant associations. The Hosmer and Lemeshow goodness-of-fit model was used to test model fitness and variance inflation factor for multicollinearity.

## RESULTS

### Sociodemographic characteristics

Of the 405 women recruited, 381 completed the questionnaire (94.1% response rate). 247 (64.7%) were urban residents, and majority (80.8%) of those presenting for induced abortion care were single. Of the respondents, 160 (42%) had completed primary education, 291 (74.4%) were of Orthodox Christian religion and 172 (45.1%) presented at  $\leq 19$  years of age. Nearly two-thirds (64.6%) of the respondents were students and 123 (29.6%) lived alone, with 57% residing within a family setting (online supplemental appendix table 1).

### Reproductive and maternal characteristics

Of the total respondents, only 115 (30.2%) used any type of contraception preceding the current pregnancy. Among women who used contraceptives, 73.9% were emergency contraceptive users. Majority (80.3%) of the participants were primigravida. Of the respondents, 39 (10%) reported a history of induced abortion, with almost two-thirds (63%) reporting induced abortion following sexual assault. Approximately 100 (26.5%) experienced irregular menstrual cycles (online supplemental appendix table 2).

### Level of awareness and behavioural determinants of reproductive-related factors

Our findings suggest more than half (53.7%) of the study participants discussed the fate of their pregnancy with significant others, and more than half discussed options with their parents, with 156 (40.9%) confirming pregnancy with a home urine test. Among the total respondents, 237 (64.4%) delayed the decision to contact an abortion service following confirmation of pregnancy. Majority (351, 92.1%) of the respondents listed at least two institutions where abortion service is provided (online supplemental appendix table 3).

### Health services and systems variables

Of the total participants, 82 (21.5%) visited other health facilities for abortion services. Majority (78.5%) sought help and advice from health centres but did not receive treatment. Only 40 (10.5%) presented with a medical referral, and 58 individuals either requested a medication prescription from a healthcare practitioner or purchased the medication directly from a pharmacy (online supplemental appendix table 4).

## Prevalence and factors associated with late presentation for induced abortion care

In this study, the prevalence of late presentation for induced abortion care was found to be 21.5% (95% CI 17.70, 2.57). The official place of residency, menstrual cycle pattern, age, use of contraception, failure to carry out a pregnancy test, lack of awareness regarding common signs and symptoms of pregnancy, failure to seek medical referral, justification for termination (ie, incest/sexual assault), delayed decision regarding termination and failed medical management of termination were associated with late presentation for safe induced abortion care in the bivariable analysis ( $p < 0.25$ ). In the multivariable analysis, being urban residents, use of contraceptives, having irregular menses, pregnancy resulting from incest and delayed decisions to seek abortion care were significantly associated with the outcome variable ( $p < 0.05$ ) (online supplemental appendix table 5).

## DISCUSSION

This study provides additional insight into the magnitude of late presentation for induced safe abortion care and the associated factors at selected hospitals in the South Gondar district of Northwest Ethiopia. The magnitude of late presentation for induced abortion care was at 21.5%, and this is in line with studies done in South Africa (20%), as well as studies in Ethiopia such as at Amhara Region referral hospitals in Northern Ethiopia (19%) and at Wolaita Sodo and Arbaminchi town public hospitals (23%).<sup>28</sup> However, this is lower than the studies conducted at St Paul Millennium Medical College in Addis Ababa (53%) and at Debre Markos Referral Hospital in Ethiopia (29.6%).<sup>29,30</sup> A possible explanation for this difference is the study setting. The above-mentioned studies were conducted at referral hospitals, whereas the current study is carried out at district primary hospitals. Clients in referral hospitals are mostly referral cases. Moreover, after these above-mentioned studies were conducted, amendments, and interventions might possibly have been taken by the Ministry of Health of Ethiopia and NGOs for abortion care to have first-trimester abortion services provided at the primary health facility level.

On the contrary, the findings of this study are higher than the global prevalence report of 10%–15%<sup>31</sup> and a study in Texas showing a prevalence of 14.5%.<sup>32</sup> The possible explanation for this significant magnitude of late presentation for induced abortion in the current study could be the unavailability of telemedicine and self-abortion care services for first-trimester induced abortion in the country. In addition, there is an insufficient number of private institutions that provide induced abortion care services in the study area, specifically late-trimester abortion. In the USA and Canada, women who obtained abortion services through telemedicine were more satisfied than those who visited an abortion clinic.<sup>33</sup> Customers who are satisfied with services come early to obtain the services that they require. Cultural, economic

and political differences are also possible reasons for the discrepancy in the prevalence of late presentation for abortion care, as well as the literacy level of the study population.

The findings of this study showed being a rural resident was significantly associated with late presentation for induced abortion care. More than one-third of women with abortion complications beyond the first-trimester pregnancy period, and seeking care after second-trimester abortion was more common among women in Ethiopia living in the countryside compared with urban residents.<sup>34</sup> It is also in line with a study carried out at Amhara Region referral hospitals and Jimma Referral Hospital in Ethiopia, as well as in India, where women living in rural areas presented in the second trimester for induced abortion care compared with their counterparts.<sup>35</sup> This could be explained by the fact that women from urban areas had more access to different social media and other sources of information about abortion and other related maternal health services. Also, women living in urban areas might have good educational opportunities and thus might not delay requests for induced abortion services. Despite the fact that abortion services in Ethiopia are free, clients living far from health facilities may face economic constraints, including costs associated with transportation, as well as with bed and food while visiting the hospital.

This study found that late presentation for safe termination of pregnancy was more likely in women who had irregular menses than those who had regular menses. This is supported by the studies conducted in Canada and Ethiopia.<sup>36</sup> Irregular menses might cause confusion among women regarding early detection of pregnancy and women may need extra time to have a pregnancy test, leading to late requests for termination of pregnancy.<sup>37</sup> However, a study done in a Zambian teaching hospital showed irregular menses had no association with late presentation or safe termination of pregnancy.<sup>38</sup> This difference may be due to differences between study population characteristics and study setting, especially as the above-mentioned study was carried out at a university teaching hospital.

In this study, women who used contraceptives to prevent pregnancy have missed the opportunity to have an abortion in the first trimester. A qualitative study carried out in Scotland reported that use of contraceptives among women was associated with second-trimester induced abortion.<sup>39</sup> Another study in India showed that failure of contraceptives accounted for about 42.8% of abortions sought by women who missed the opportunity to avail of the comparatively safer and easier first-trimester abortion.<sup>40</sup> On the other hand, due to poor knowledge about the effectiveness of contraceptives, women might think that they are not pregnant because they are using contraceptives. Also, women may use fewer effective contraceptives and fertility awareness methods.<sup>41</sup> Consequently, they tend to appreciate their pregnancy at a later gestational age and are thus prone to late presentation for

abortion care.<sup>42</sup> On the contrary, a study at Yale University Hospital in New Haven found that use of contraceptives decreased the likelihood of delayed presentation for abortion care.<sup>43</sup> The possible reason for this difference is the study population. Women in developed countries may have adequate information about contraceptives and the signs and symptoms of pregnancy. In general, use of contraceptives decreases the overall incidence of induced abortion by decreasing the occurrence of unintended pregnancies.

Delayed decision to terminate pregnancy was greatly associated with late presentation for induced abortion care in this study. This is similar to the studies carried out in England and Wales,<sup>44</sup> Kenya,<sup>45</sup> Southwest Ethiopia<sup>46</sup> and Addis Ababa.<sup>47</sup> Women who had low levels of education and who sought recruitment opportunities were limited from jobs, educational opportunities and the stigma from healthcare providers. Social and religious factors are also possible reasons for the late decisions to terminate pregnancies following confirmation of pregnancy.

In this study, the likelihood of pregnancy resulting from incest were 2.5 times higher for induced abortion care at more than 12 weeks of gestational age than for pregnancy due to rape. A possible reason is that these women may have kept their pregnancy a huge secret due to fear of stigma in the family, as well as social and religious beliefs. Aside from this, the aggressors might have threatened them not to tell anyone, leading to late decisions for abortion at a later gestational age. They may have also been blackmailed by their partner, resulting in their silence. This finding is in line with almost everything described by a study in Brazil.<sup>48</sup>

## CONCLUSION

Despite the presence of first-trimester abortion services, according to the findings of this study, more than one-fifth (21.5%) of women missed the opportunity to present for induced abortion care service during their first-trimester pregnancy. Residency in rural areas, irregular menstrual cycles, pregnancy resulting from incest, delayed decision for termination, and use of contraceptives are associated with late presentation for induced abortion care service.

## RECOMMENDATIONS

### To regional health and educational bureaus

Regional health and educational bureaus should pay further attention to the issue of intimate partner violence since pregnancy resulting from incest is highly associated with late presentation for abortion. Majority of the vulnerable groups for induced abortion are students, rural residents and young people, and thus reproductive health education as well as adequate information on contraceptive use and its effectiveness, signs and symptoms of pregnancy, decision-making skills and information about abortion services should be given. Youth-friendly service facilities should be fully available at all schools and health

facilities in rural areas. It is also advisable to develop the decision skills of adolescents through education.

Additionally, it is better to avail of self-abortion care and telemedicine services. WHO recommends that individuals self-manage abortions during early pregnancy until 12 weeks. This is very important in order to prevent facility visits, increase client privacy and autonomy, increase access to early abortion care service and reduce late presentations for induced abortion care. Moreover, telemedicine is an important way of providing such types of services. It is a best method since the confidentiality and autonomy of the clients are maintained and it reduces the likelihood of a second-trimester abortion.

### To healthcare providers

It is better to give proper advice and provide contraceptives to prevent unintended pregnancies and thus prevent the incidence of induced abortions and reduce the prevalence of late requests for induced abortion care. It is also better to provide abortion services in the first trimester at every health facility level based on Ethiopian abortion law.

### To researchers

Because of the sensitive nature of induced abortion, a qualitative study may be needed to further explore the underlying reasons why women present for termination of pregnancy in their second trimester.

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**Acknowledgements** The authors would like to thank the University of Gondar for providing ethical clearance and letters of cooperation. They also thank the data collectors and the study participants.

**Contributors** EHD: formal analysis, method, supervision, writing up, manuscript preparation and guarantor. MB, EAC: advisor and supervisor of the entire work, editing, tool preparation. EWM: conceptualisation, synthesis, proposal writing, data analysis, writing up the manuscript.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not required.

**Ethics approval** This study involves human participants and ethical clearance was obtained from the School of Midwifery Research Ethics Committee on behalf of the Institutional Review Board (IRB) of the University of Gondar. Written consent was obtained from each study subject independently. At the end of data collection, the respondents received appropriate counselling about family planning and the risk of abortion complications from the data collector. Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All data relevant to the study are included in the article or uploaded as supplementary information.

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