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Induced abortion among internally displaced women in Debre Berhan, Central Ethiopia: Incidence, barriers, and enablers of service utilisation

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Abstract

This study examined the incidence of induced abortion and factors influencing access to abortion services among internally displaced women in Debre Berhan, Ethiopia, using a mixed-method cross-sectional design. Quantitative data were collected from 1,863 women, and qualitative data from 16 participants. The annual rates of self-reported, unadjusted, and adjusted best friend abortion were 5.4, 8.8, and 42.2 per 1,000 women, respectively. Barriers to access included stigma, lack of support, medical and non-medical costs, fear of prosecution and privacy breaches, poor infrastructure, and limited awareness. Key facilitators included free abortion care in public facilities, NGO support, flexible provider interpretation of abortion law, referral networks, and counselling. Although the confidence intervals overlapped, the best friend method indicated a higher incidence than self-reports. The inflated adjusted figure shows significant underreporting. Addressing barriers requires initiatives to reduce stigma, lower costs, improve service quality, and raise awareness among displaced women and the broader camp population. *(Afr J Reprod Health 2025; 29 [9s]: 91-106).*

Keywords: Induced abortion, Incidence, Best friend method, internally displaced people, Ethiopia

Résumé

Cette étude a examiné l'incidence des avortements provoqués et les facteurs influençant l'accès aux services d'avortement chez les femmes déplacées à l'intérieur du pays à Debre Berhan, en Éthiopie, à l'aide d'une approche transversale mixte. Des données quantitatives ont été recueillies auprès de 1 863 femmes et des données qualitatives auprès de 16 participantes. Les taux annuels d'avortements autodéclarés, non ajustés et ajustés par la meilleure amie étaient respectivement de 5,4, 8,8 et 42,2 pour 1 000 femmes. Les obstacles à l'accès comprenaient la stigmatisation, le manque de soutien, les coûts médicaux et non médicaux, la crainte de poursuites judiciaires et d'atteintes à la vie privée, la médiocrité des infrastructures et une sensibilisation limitée. Les principaux facteurs facilitant l'accès aux services d'avortement comprenaient la gratuité des soins dans les établissements publics, le soutien des ONG, une interprétation souple de la loi sur l'avortement par les prestataires, les réseaux d'orientation et le soutien psychologique. Bien que les intervalles de confiance se chevauchent, la méthode de la meilleure amie a indiqué une incidence plus élevée que les autodéclarations. Le chiffre ajusté et gonflé montre une sous-déclaration significative. Pour surmonter les obstacles, il est nécessaire de prendre des initiatives visant à réduire la stigmatisation, à diminuer les coûts, à améliorer la qualité des services et à sensibiliser les femmes déplacées et l'ensemble de la population des camps. *(Afr J Reprod Health 2025; 29 [9s]: 91-106).*

Mots-clés: Avortement provoqué, incidence, méthode du meilleur ami, personnes déplacées à l'intérieur du pays, Éthiopie

Introduction

The number of internally displaced persons (IDPs) continues to rise. Between 2019 and 2023, the total number of IDPs increased by 51% (50.3 to 75.9 million).[1,2] More than half were women and girls. Sub-Saharan Africa (SSA) accounts for 46% of all global IDPs.[2] Ethiopia is one of the five countries with the highest global numbers, as well as one of the top four in SSA.[2,3] IDPs are individuals or groups compelled to leave their habitual residences due to war, violence, natural disasters, or human rights abuses, but stay inside their country.[4] In Ethiopia, the number of people displaced because

of violence and conflict is growing.[3] Ethiopia continues to confront massive internal displacement as a result of armed conflict.[5] As of 2023, around 4 million people were predicted to be internally displaced in Ethiopia.[6] Women and children account for a large proportion of IDPs in Ethiopia.[7]

Refugees and IDPs are vulnerable to a variety of sexual reproductive health (SRH) problems. They are at risk of Gender-Based Violence (GBV),[8,9] HIV (human immunodeficiency virus).[10] and adverse pregnancy outcomes.[11,12] Their vulnerability to GBV, along with a lack of access to SRH services, increases the risk of unwanted pregnancy and unsafe abortion.[8] Refugees and IDPs frequently engage in unsafe abortion procedures, such as terminating pregnancy with detergents, shattered bottles, herbs, or pain medicine.[13]

Studies on the burden of abortion among refugees and IDPs are limited in low and middle-income countries (LMICs).[14] The current abortion rate is mostly unknown among LMIC immigrants and IDPs.[13,14] The reasons that contribute to the poor use of safe abortion services among refugees and IDPs have not been well explored or documented. Few previous research identified the unavailability and inaccessibility of abortion providers,[15] abortion stigma,[16,17] lack of knowledge on contraception,[18,19] restrictive abortion law,[13,20] financial and language problems[16] as common barriers to safe abortion practices.

To develop effective initiatives to reduce unsafe abortion among IDPs, knowledge of the incidence and factors influencing access to safe abortion care among these unique populations is required. However, little research has been carried out on abortion among Ethiopian refugees and IDPs. This study is one of the first reports on the incidence of abortion and the factors that influence access to safe abortion services among Ethiopian IDPs. Hence, the purpose of this study is to determine the incidence of induced abortion and to explore the factors that enable or hinder access to safe abortion services among these women in Debre Brehan, central Ethiopia.

Methods

Study area and period

The study was conducted at three IDP cities in Debre Brehan: China, Woynishet, and Bakelo. Around 23,093 IDPs are estimated to reside in these sites, with 50.2% female and nearly half staying at the China Camp.[21] Based on camp registration statistics, the total number of reproductive-aged women (15-49 years) was projected to be 5,809.[21] The study was conducted from January 30 to February 30, 2024.

Study design

The study used a convergent parallel mixed-methods cross-sectional design. Both qualitative and quantitative data were collected and analysed independently, with the findings combined to form an overall conclusion. The quantitative component assessed the incidence of induced abortion, while the qualitative part explored barriers and enablers to safe abortion service usage, using in-depth interviews.

The study used direct respondent and best friend methods to estimate abortion incidence among respondents and best friends, respectively. The best friend method was employed in previous research and generated a higher abortion incidence as compared to the direct respondent method.[22,23]

Sample size and sampling procedure

The minimum sample size was estimated using the Slovin method,[24] with formula represented as: $n=N/(1+Ne^2)$. Where: ‘n’, ‘N’, and ‘e’ are sample size, size of population, and the margin of error, respectively. The total population of reproductive-age women in the Debre Brehan IDP sites was estimated to be 5,809. With a 2% margin of error and a 10% non-response rate, the total sample size was calculated as 1,923.

An initial census was conducted across all camps to determine the precise numbers of women

who met inclusion requirements, enabling the creation of a sample frame. After gathering these numbers, the sample size was proportionally assigned to each camp. The sampling fraction was determined by dividing the number of eligible women in each camp by the given sample size, with participants selected at every 3rd interval. The study used information on saturation to determine the sample size for in-depth interviews, which included 16 participants.

Study participants

For the quantitative component, the study participants were internally displaced women of reproductive age (15-49 years). For the qualitative component, the study participants were purposefully chosen internally displaced women with abortion histories and key informants.

Eligibility criteria

Quantitative participants included reproductive-age women who stayed in the IDP camps for at least a year to estimate the one-year incidence rate of induced abortion. Qualitative participants included women with a recent history of abortion, representing various age groups, educational backgrounds, and service utilisation. Key informants such as formal or safe abortion service providers and NGO staff were also interviewed, as they have direct and indirect knowledge of barriers and enablers to obtaining safe abortion services.

Research team composition and relationship with participants

The data collecting team for the study included seven data collectors, two supervisors and three principal investigators. Five data collectors collected quantitative data. Two data collectors collected the quantitative data. One supervisor supervised qualitative data collection, while the other oversaw quantitative data collection. The data collectors for the quantitative component were women. The data collectors for the qualitative component were both male and female. The female qualitative data collectors obtained data from the IDP women, whereas the male qualitative data collectors gathered data from key informants. The qualitative data collectors have a minimum of a BSc. and have prior experience collecting qualitative data. The quantitative data collectors have at least a diploma-level education. The investigators were male university teachers with health science credentials. Before the start of the study, none of the data collectors or supervisors had any relationships with the study participants. The lead investigators provided two days of training on ethical research practice, sensitive questioning, and effective use of the Kobo Toolbox to the data collectors and supervisors.

Data collection tools and procedures

The study used an interviewer-administered structured questionnaire and semi-structured interview guide adapted from abortion-related literature.[22,23] The interviewer-administered structured questionnaire was used for quantitative data, while a semi-structured interview guide was used for interviews with key informants and women who have had abortions. Both the interviewer-administered structured questionnaire and semi-structured interview guide were first written in English and then translated into Amharic.

The study recruited women for in-depth interviews through collaboration with Marie Stopes International and the Ethiopian Orthodox Church Development and Inter-Church Aid Commission. In-depth interviews were conducted in women's and girls' safe houses, with the option for them to choose a private spot if uncomfortable. Key informants were interviewed in their chosen rooms, not in their offices, and the interviews were conducted in Amharic and took approximately one hour.

The study involved respondents choosing their best friend before discussing abortion, ensuring they were not prompted to consider it early in the poll. They were asked if their friend had ever intentionally ended a pregnancy, and if they had done so, whether it was "Yes," "Yes, I think so," "Yes, I am certain," or "I am not sure." The overall induced abortion among best friends was calculated by combining "Yes, I think so" with "Yes, I am certain." After questioning about their best friend's abortion experience, respondents were asked about their own abortion experiences, including the year,

months, and if unsure about the year, whether the abortion occurred within the last year, between 1-3 years, or more than 3 years. The annual incidence of abortion among best friends was calculated by dividing all best friend abortions in a calendar year (2023/2024) by the total number of best friends, and the one-year respondent abortion incidence was calculated by dividing all abortions occurring 12 months before the interview by the number of respondents.

Data analysis

Quantitative data were gathered with an Android-based phone application, Kobo Toolbox, and then exported to SPSS version 22 for further analysis. The essential assumptions underlying the best friend method were checked. These assumptions are: respondents and best friends share information about their abortions (assumption 1); respondents have complete knowledge of their best friends' abortions (assumption 2); respondents are willing and able to disclose best friends' abortions in surveys (assumption 3); respondents select best friends with homophily (similar characteristics) (assumption 4); respondents who report no best friends do not differ systematically from those who do (assumption 5); and best friends inclusion is independent of their abortion status (assumption 6). We also adjusted the transmission bias. Transmission bias arises when respondents do not have complete knowledge of their best friends' abortion experiences (violation of assumption 2).[25] To adjust, we calculated the inverse proportion of respondents who disclosed their abortion experiences to best friends, multiplied by 2023/24 reported abortion cases, and then divided by the number of best friends to determine the annual adjusted incidence of induced abortion.

To investigate the introduction of recall bias, the annualised and one-year abortion rates were compared. The annualised rate was obtained by totalling each year's abortion rate and then dividing by three. If there is a difference, it indicates recall bias (violation of assumption 3).

The chi-square test was used to determine if respondents chose best friends with homophily, and a significant difference in socio-demographic variables between respondents and their best friends suggests they did not choose homophily (violation of assumption 4). The reasons why we evaluated the assumption of homophily are the fact that the best friend approach relies on the assumption that best friends share socio-demographic characteristics with respondents. Violation of this assumption could render the surrogate sample non-representative of the source population. This, in turn, led to biased abortion incidence estimates.

Finally, we tested the validity of the best friend method by utilising less sensitive reproductive health behaviours, such as long-acting reversible contraception (LARCs). We choose LARCs for sensitivity analysis for various reasons. First, LARCs are more visible compared to short-acting contraceptives, making them a better proxy for validating the best friend method. Second, LARCs' use is prone to memory bias compared to short-acting contraceptives. Third, a past study applied LARCs to check the validity of third-party reporting methods like the confidante approaches.

The qualitative data were transcribed and translated into English, with investigators (KM and SS) confirming the transcripts. The translated data were loaded into Atlas Ti.8 for analysis thematically employing both inductive and deductive approaches. A codebook was constructed based on the study's objectives, and by utilising roughly 25% of transcripts (4 of 16 interviews), with one selected from each participant category (CAC users, CAC non-users, NGO workers, and formal abortion care providers). The final codebook was then used to code the remaining transcripts. Narrative texts and direct quotes from participants were applied to illustrate themes. The study utilised the Consolidated Criteria for Reporting Qualitative Research.

Ethical considerations

Debre Brehan University gave ethical permission for the study (Ref. No 01/02/2016 and Protocol No. 196). The risks and advantages of the study were explained to each study participant. Verbal consent was employed instead of written consent to safeguard participant privacy and security. However, the phrase 'abortion' was not mentioned in the approval form. Research participants were

informed that the study focuses on their experiences and choices concerning pregnancy outcomes, childbearing, contraceptive usage, and other facets of well-being. Previous studies have typically employed this sort of permission for abortion studies. [23,24] Women were instructed to submit a fictional name for their best friend to protect anonymity and ease of reference. To ensure anonymity, all data were anonymised, and personal identifiers were erased during data collection and processing. A cooperation letter was secured from the zonal IDP coordinating office and other necessary government authorities.

Results

Background characteristics of quantitative study participants

The survey sample included 1,863 women, resulting in a response rate of 96.9%. Around 45.4% of respondents had no best friends. Women aged 30–39 accounted for 35.9% of those without best friends, compared to 30.2% of those with best friends. Similarly, women aged 40-49 made up 25.4% of those without best friends, compared to 21.1% of those with best friends. There was a higher percentage of women without best friends who were unable to read and write (72.9% vs. 59.5%) than those with best friends. Conversely, a greater percentage of women with best friends were married compared to those without (66.3% vs. 63.6%). The percentage of women with best friends who were current users of LARCs was approximately equal to those without (12.6% vs. 12.3%). Table 1 shows the results for the background characteristics for all the respondents, and those with or without a best friend.

Incidence of induced abortion

Among respondents who had best friends and who had intentionally terminated pregnancy, only 20.5% shared their abortion status with their best friends. Of respondents who had best friends, 2.6% of them reported that they were certain that their best friend had taken action to terminate their pregnancy. Of respondents who had best friends, only 0.4% of them claimed that their best friend had ever taken action to terminate pregnancy, although they were uncertain. The remaining 97% of respondents who had best friends reported that their best friend didn't terminate pregnancy intentionally. The one-year respondents' incidence of induced abortion was 5.4 (95% CI=2.6-9.8) per 1000 women of reproductive age. The one-year respondents' incidence of induced abortion was determined by dividing the total respondents' abortion cases in the 12 months preceding the interview (10 cases) by the total respondents (1,863) and multiplying by 1000, yielding 5.4 per 1,000.

The best friend's one-year incidence of induced abortion was 8.8 (95% CI=4.1- 16.7). The one-year abortion incidence among best friends was estimated by dividing the 9 reported best friends' abortion cases (in 2023/24) by the total number of best friends (1,018) and multiplying by 1,000, resulting in 8.8 cases per 1,000 women (9/1,018 × 1,000 = 8.8).

After the adjustment of transmission bias, the best friend's one-year induced abortion rate increased to 42.2 per 1000 women (95% CI=30.7-56.5) (Figure 1). To account for transmission bias, we computed the adjustment factor as the inverse of the percentage of respondents who reported their abortion experience to best friends (1/0.205 = 4.8). Multiplying this factor by the best friends' abortion cases reported in 2023/24 (9 cases) gave 43 adjusted abortion cases. We then divided the corrected total (43 abortion cases) by the total number of best friends (1,018) and multiplied by 1,000, resulting in a transmission bias-adjusted one-year induced abortion incidence of 42.2 per 1,000 women (Figure 1).

Sensitivity analysis

The results of the current study indicated that the estimate of a one-year best friend-induced abortion was substantially higher than the annualised estimate, which may indicate a possible recall bias. The annualised incidence was computed by averaging the 13 best friends' abortion cases over three years (13/3 = 4.3≈4), dividing by the total number of best friends (1,018), and multiplying by 1,000. This results in 3.9 per 1,000 women (4/1,018 x 1,000 = 3.9). For the three-year best friend's abortion incidence (2021–2023/24), the 13 best friends reported abortion cases were divided by the

Table 1: Background characteristics of respondents overall and by whether they reported having a best friend among IDPs in Debre Berhan, 2024

Variables	All respondents		Have best friends		Do not have best friends	
	%	N	%	N	%	N
Age (in years)						
15-19	13.8	257	14.9	152	12.4	105
20-29	30.4	566	33.8	344	26.3	222
30-39	32.7	610	30.2	307	35.9	303
40-49	23.1	430	21.1	215	25.4	215
Education						
Unable to read and write	65.6	1222	59.5	606	72.9	616
Able to read and write	5.7	107	7.0	71	4.3	36
Primary (grade1-8)	25.0	465	29.0	295	20.1	170
Secondary and above (≥grade 9)	3.7	69	4.5	46	2.7	23
Marital status						
Married	65.1	1212	66.3	675	63.6	537
Single	14.4	269	15.3	156	13.4	113
Separated	9.9	184	9.7	99	10.1	85
Divorced	10.6	198	8.6	88	13.0	110
Have children						
Yes	80.2	1495	78.3	797	82.6	698
No	19.8	368	21.7	221	17.4	147
Ever used contraceptives						
Yes	67.0	1249	68.8	700	65.0	549
No	33.0	614	31.2	318	35.0	296
Current user of contraception						
Yes	44.3	826	48.7	496	39.1	330
No	55.7	1037	51.3	522	60.9	515
Currently using LARCs						
Yes	12.5	1631	12.6	890	12.3	104
No	87.5	232	87.4	128	87.7	741
Total		1,863		1,018		845

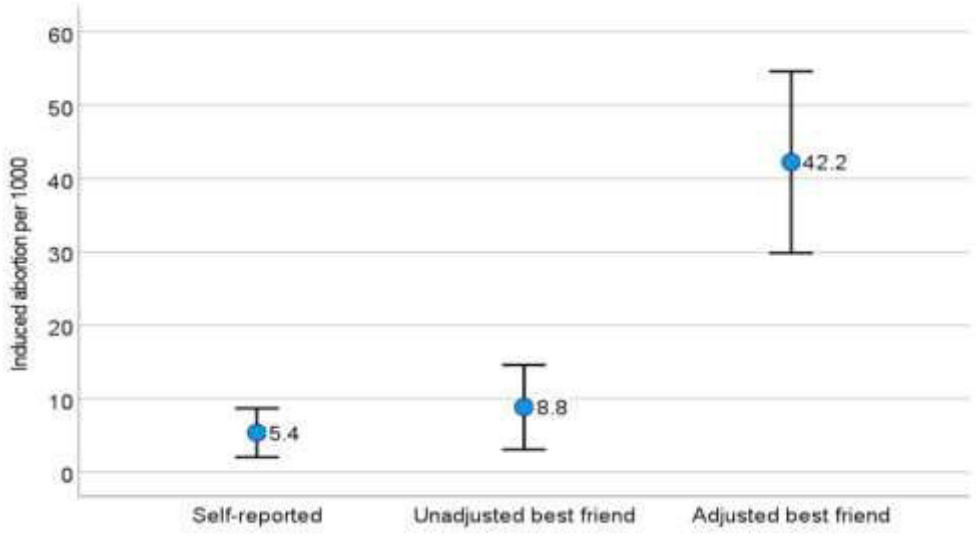

Figure 1: Self-reported, unadjusted, and transmission bias-adjusted best friend one-year induced abortion incidence rates per 1,000 reproductive age women in Debre Berhan IDP sites, 2024

Table 2: The incidence rates of best friend abortions for one, three, and annualised periods per 1,000 women (15–49 years old) in the Debre Berhan IDP sites, 2024

Variables	No. of Cases	Denominator	Rate per 1000 women (15-49 years)	95 % CI	
One-year	9	1,018	8.8	4.1	16.7
Three-year	13	1,018	12.8	6.8	21.7
Annualized	4	1,018	3.9	1.1	10.0

Table 3: Differences in the background characteristics between respondents and their best friends among women (15–49 years) in Debre Berhan IDP sites, 2024 (N = 1,018)

Variables	Respondents (n, %)	Best friends (n, %)	P-value
Age (in years)			p<0.001
15-19	152(14.9)	251(24.7)	
20-29	344(33.8)	416(40.9)	
30-39	307(30.2)	243(23.9)	
40-49	215(21.1)	108(10.6)	
Education status			p<0.001
Unable to read and write	606(59.5)	511(50.2)	
Able to read and write	71(7.0)	67(6.6)	
Primary (grade1-8)	295(29.0)	343(33.7)	
Secondary and above (≥grade 9)	46(4.5)	97(9.5)	
Marital status			p<0.001
Married	675(66.3)	627(61.6)	
Single	156(15.3)	257(25.2)	
Separated	99(9.7)	69(6.8)	
Divorced	88(8.6)	65(6.4)	
Have children			p<0.001
Yes	797(78.3)	658(64.6)	
No	221(21.7)	360(35.4)	
Ever used contraceptives			p<0.001
Yes	700(68.8)	608(59.7)	
No	318(31.2)	410(40.3)	
Current user of contraception			p<0.001
Yes	496(48.7)	481(47.2)	
No	522(51.3)	537(52.8)	
Currently using LARCs			P=0.526
Yes	890(87.4)	937(92.0)	
No	128(12.6)	81(8.0)	

total number of best friends (1,018), and multiplied by 1,000, providing 12.8 cases per 1,000 women. Table 2 illustrates the one-year, three-year, and annualised one-year best friends abortion incidence estimates.

We used a chi-square test to determine if participants were inclined to have best friends with similar characteristics by examining whether there was a notable difference between respondents' and best friends' background characteristics. We found significant discrepancies, which show the best friend samples were not representative of the broader population (Table 3).

Validity check

We also examined the validity of the best friend method by determining the prevalence of long-acting reversible contraceptive usage among best friends. About 12.5% (95% CI 10.9–14.0) of women were current users of implants or IUDs. The unadjusted best friend IUD or implant usage was 8.0% (95% CI 6.4-9.8), which was lower than the respondent's (Figure 2). The lower reported use of IUDs or implants among best friends compared to respondents may indicate concerns about the validity of the best friend method.

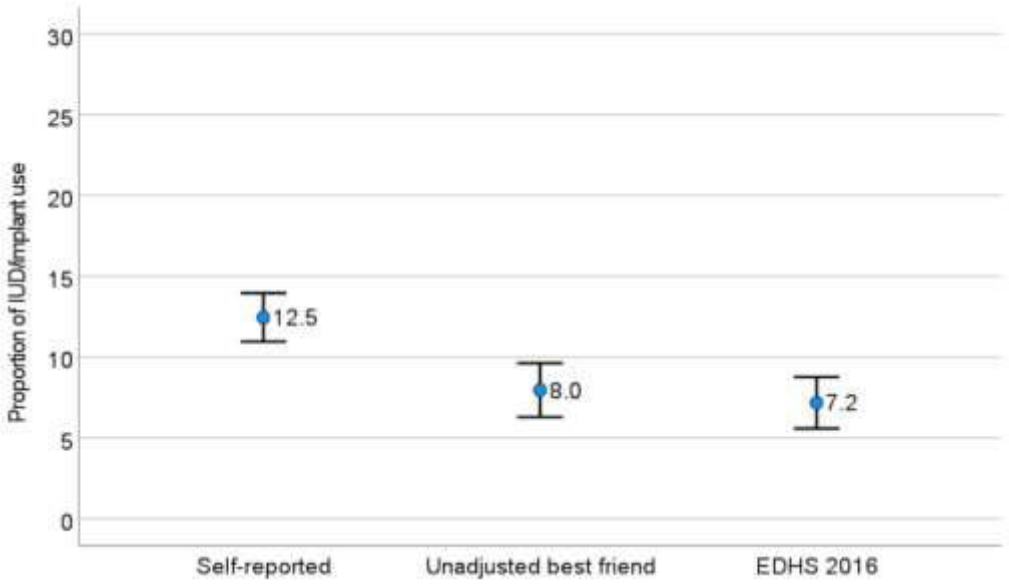

Figure 2: Self-reported, unadjusted best friend, and EDHS estimates of the current prevalence of IUD or implant use among women of reproductive age in Debre Birhan IDP sites, 2024

Table 4: Background Characteristics of Respondents Participating in the Qualitative Study in Debre Birhan, Ethiopia, 2024

Types of participants	Numbers	Age ranges(years)	Education status	Sex	Years of professional experience for key informants
CAC-users	8	16-36	6 with primary education, 2 with no formal education	All female	NA
CAC-non users	3	25-40	2 with primary education, 1 with no formal education	All female	NA
Key informants	5	22-52	All with tertiary education	1 male, 4females	2 -28 years

NA=Not Applicable

This might indicate underreporting or inadequate information regarding friends' contraception use. This, in turn, may lead to an underestimation of induced abortion rates when using the best friend method.

Background characteristics of qualitative study participants

The qualitative research has 16 participants: 5 key informants, 3 women who have never used Comprehensive Abortion Care (CAC) services (CAC non-users), and 8 women who have used CAC services (CAC users). Both CAC users and non-users had never attended beyond basic school. Key informants vary in age from 22 to 52 years, with at least two years of professional experience and a BSc degree (Table 4).

We found six themes that influence access to abortion care: camp context; Abortion law interpretation and criminalisation fears; economic factors; knowledge, and abortion-seeking behaviour; sociocultural factors; and health service

delivery factors. The barriers and facilitators associated with each of these themes, together with pertinent participant quotes, are described below.

Facilitators to accessing safe abortion care

Abortion law interpretation and criminalisation fears

Some safe abortion care providers follow a more flexible approach, especially for displaced women, recognising the severity of the harsh circumstances these women face. These providers interpret the abortion law more broadly to address the numerous issues encountered by displaced women. As one safe abortion provider explained, *"They [IDP women] indirectly meet the criteria. Their conditions are horrible... We can't always adhere to rigorous rules like rape or deformity." (Key informant 1, Abortion care provider).* Such a broader interpretation of the law on abortion is essential for displaced women because they face many challenges, such as being forced to leave their homes, exchanging sex for survival, and living in poverty. The Ethiopian law on abortion does not explicitly recognise these reasons as valid grounds for permitting abortion.[26]

Economic factors

Abortion is done free at public health institutes. This has been regarded as crucial in helping internally displaced women to get safe abortion care without the financial burden. One key informant underlined, *"The fact that abortion services are free in the public health facilities has allowed women to access the available services." (Key informant 2, NGO worker).* Furthermore, some NGOs offer discounted services to internally displaced women, provided they meet specified criteria when they cannot afford to pay. One abortion care provider explained, *"If women who wish to terminate a pregnancy cannot pay, we provide free or waived services." (Key informant 1, abortion provider)*

Camp context

Participants stressed the vital role NGOs and volunteers play in providing access to safe abortion services inside camps. These organisations give important help via advice, information, material aid, and psychological assistance. One CAC user explained, *"There are NGOs in the camp that offer information and counselling. Because of these NGOs, I was able to obtain treatment from medical institutions." (18-year-old CAC user).* Collaboration among NGOs and camp groups has enhanced the efficiency of abortion care delivery and built strong referral networks. An abortion care provider noted, *"I believe that the shared understanding of NGOs has made it easier for us to provide care." (Key informant 4, abortion care provider)*

Healthcare delivery factors

Temporary reproductive clinics and established referral networks are vital in offering safe abortion services for internally displaced women. These clinics offer basic lab testing and referrals, accelerating access to care. A young woman stated her experience: *"We began by visiting the clinic in this camp. I got a reference letter to another clinic outside the camp. After acquiring the findings, I returned and acquired the pill for a medical abortion." (16-year-old CAC user).* Access to safe abortion is further facilitated by health professionals who give vital information, assistance, and counselling. One woman shared: *"I went to the clinic providing abortion services after getting information and counselling at the camp." (35-year-old CAC user)*

Knowledge and abortion care-seeking behaviour

According to study participants, the understanding of safe abortion alternatives among refugee women is improving as a result of the efforts of numerous NGOs and volunteers in the camp, with a 26-year-old CAC user stating, *"In this camp, women's awareness is increasing due to the guidance and advice provided by NGOs in the camp."*

Barriers to accessing safe abortion care

Abortion law interpretation and criminalisation fears

While the partial relaxation of Ethiopia's abortion law has increased access to safe abortion care,

conflicting interpretations by providers lead to unequal access. Some rigorously adhere to the law, which authorizes abortion only in circumstances like rape, incest, fatal deformity, being under 18, or harm to the mother.[26] One abortion provider emphasised this: "*There are specific conditions under which abortion is allowed. I exclusively give care to women who fit those requirements, although others may not follow them strictly." (Key Informant 4, Abortion provider).* Women in camps frequently remain uninformed about the legal reasons for abortion, adding to their confusion. One young woman stated her doubts: *"These people [camp residents] live in catastrophe... We are incapable of parenting children. Still, the legislation may not cover all these circumstances." (18-year-old CAC user).* Additionally, fear of punishment deters women from accessing safe procedures, even at clinics. Concerns of being labelled as a "soul murderer" and facing criminal charges continue, as one lady shared: *"Ending a pregnancy is seen as taking a life... Even if she goes to a clinic, she might wind up in jail." (40-year-old CAC non-user)*

Economic factors

Although safe abortion services are free in public health facilities, women are expected to pay for the abortion procedures offered in private facilities, making private services expensive for many women. As a key informant stated, *"Women are apprehensive about attending private health facilities since they may have to pay for procedures there in the private health facilities." (Key informant 1, abortion provider).* Participants also complained about direct non-medical costs, especially transportation fees. This is a big challenge for internally displaced women who seek safe abortion care. High travelling expenditures frequently prevent women from obtaining treatment. A CAC non-user gave her opinion: *"She could choose not to receive treatment from the clinics due to financial concerns. Travel charges increased from 20 birrs to 50 or 60 birrs." (25-year-old CAC non-user)*

Camp context

The living situations in the camps impose huge challenges. The congested situation of the camp and dwellings, without having sex segregation, impedes women's confidentiality and privacy. One CAC user stated, *"It's difficult to terminate the pregnancy. The overcrowded environment in the camp makes ending pregnancy much more challenging." (16-year-old CAC user).* An NGO worker confirmed the perspective of the CAC user: *"It is very tough to provide abortion care while warranting women's privacy because people in the camp are living in such a congested environment." (Key informant 2, NGO worker)*

Healthcare delivery factors

The violations of privacy and confidentiality hinder women from obtaining safe abortion procedures. Fear of being identified at clinics makes many women hesitate to seek care. One abortion provider clarified: *"The main concern is fear of being seen at the health facilities. Women don't think that their procedures remain secret in health facilities." (Key informant 5, abortion care provider).* As a result, some women choose to end pregnancies quietly inside their homes to prevent publicity. A non-user stated, *"If she wants to keep her situation private, she can terminate it at home." (25-year-old CAC non-user).* Challenges also result from poor infrastructure. Shortages of drugs and lab supplies drive women to seek care elsewhere. One user explained, *"There's a shortage of medication, so we're often referred elsewhere. If these flaws were solved, the community would utilise the services more." (18-year-old CAC user).* A CAC non-user also confirmed resource limitations and lengthy wait times for treatment were typical, with some women feeling neglected by health professionals: *"Health workers often ignore us, delaying care to terminate pregnancies." (25-year-old CAC non-user)*

Socio-cultural factors

Social stigma and fear of isolation substantially restrict women's access to safe abortion services. Concerns of community retaliation, including shame, ridicule, and ostracism, are common. A 35-year-old CAC user noted the emotional toll: *"Women who have had abortions often feel worried about being alone in their neighbourhood. In this camp, the major problems were loneliness,*

mocking, and isolation." The fear of communal talk also deters women's access to abortion care, as a 16-year-old CAC user explained, *"She is afraid of the rumours. If I go to the clinic, people will find out, and if I discuss my problem, others could speak about it."* Camp circumstances heighten these worries, with shared, congested areas affording little privacy. One NGO worker stressed this issue: *"Lots of people talk about it when a woman experiences an abortion. This makes women frightened of the rumours that circulate in the camp." (key informant 2, NGO worker)*. Religious and cultural beliefs about abortion add another degree of difficulty. From a spiritual perspective, abortion is often seen as a sin, making women reluctant to explore safe medical options. A 40-year-old non-user of CAC shared, *"In our religion, terminating a pregnancy is forbidden. God will interrogate you about it. I hope for forgiveness."* As a result, some women revert to conventional ways instead. A 26-year-old CAC user noted, *"Our culture and religion forbid abortion. Women avoid health facilities and may choose other ways of abortion instead."* The lack of social support in the camp worsens these challenges, leaving internally displaced women to contend with the challenges alone. A 25-year-old young CAC non-user stated, *"I believe that husbands don't help when women decide to terminate their pregnancies."* Similarly, a 35-year-old CAC user shared, *"I chose to go to the health facility on my own as I didn't receive support from anybody."*

Knowledge and abortion care-seeking behaviour

Despite NGOs' efforts, many refugee women continue to lack appropriate knowledge about safe abortion alternatives. An 18-year-old CAC user said, *"Not all women get attention from medical institutions. Only a small percentage seek treatment from hospitals since the majority are unaware of current choices for terminating a pregnancy."* Key informants also identified a lack of knowledge as a major hindrance. According to one abortion care practitioner, *"Many women are unaware of where to get these services. Some people believe we just provide family planning or counselling, unaware of the full range of abortion services we provide." (Key informant 4, Abortion care provider).* Women generally postpone seeking medical treatment until later in their pregnancy. One NGO worker described the situation as follows: "*They come to us with late pregnancies, often after three months. When we questioned why, many said they were afraid or were unaware that assistance was available. (Key informant 3, NGO worker).* Instead of going to clinics, some women select over-the-counter medications, which might lead to difficulties. A 17-year-old CAC user gave an example: *"In this camp, a woman tried using medication to terminate her pregnancy, even taking an extra dose in the evening."*

Discussion

This study seeks to estimate the incidence of induced abortion and investigate the barriers and facilitators of access to safe abortion care among internally displaced women in Debre Berhan, Ethiopia. Despite being statistically insignificant, the findings revealed that the best-friend method showed a higher incidence of induced abortion than the self-reported estimate. The survey findings highlighted several barriers to acquiring safe abortion services, including social stigma, lack of support, medical and non-medical costs, fear of prosecution and privacy breaches, poor infrastructure, and limited awareness.

Incidence of induced abortion

The annual abortion rate estimated through the best friend method was slightly higher than self-reported rates, which is consistent with findings that third-party reporting methods, such as the best friend [22] and confidante [25] approaches tend to yield higher estimates. However, the overlapping confidence interval suggests uncertainty of the estimate. Similar trends have been observed elsewhere. A study in Ethiopia and Uganda[25] found abortion rates using the confidence method (7.1 per 1,000 women) exceeded self-reports (4.3 per 1,000 women), though overlapping confidence intervals suggest uncertainty. Pierre Akilimali and his colleagues [22] reported higher rates with the best friend method, but the figures may have been inflated by including menstrual regulation as abortion.

The study's transmission bias-adjusted abortion rate was nearly five times higher than the unadjusted rate, consistent with Ugandan findings.[25] This suggests significant underreporting but raises concerns about overestimation if adjustment factors overcompensate. Displaced women's reluctance to disclose abortions, even to close friends, may limit the reliability of proxy methods like the best friend method. This may warrant future researchers to employ more confidential and culturally sensitive strategies, like list experiments or randomised response methods. These strategies may lessen the social desirability bias associated with abortion.[27,28] These strategies may also generate more trustworthy data in environments where stigma and sensitivity surrounding abortion are widespread.

Moreover, a discrepancy between the unadjusted one-year abortion incidence and the annualised rate was noticed, with the one-year rate about double that of the annualised estimate. Recall bias probably contributes to this difference. Study results in Ethiopia and Uganda[25] as well as in Ghana[29] reported increased rates for one-year abortion incidence compared to estimates from previous periods.

Facilitators of safe abortion services

Our analysis reveals that the liberalisation of abortion law in Ethiopia has encouraged internally displaced women to seek safer abortion treatments. This coincides with previous studies demonstrating that legalising abortions under specific situations considerably increases access to safe abortion procedures.[30] Study results in Ethiopia demonstrate that the updated guidelines and Ethiopian abortion law enable abortion care professionals to evaluate whether a woman fits the abortion criteria.[31,32] However, there are discrepancies in the execution of the law and the guidelines. While some abortion care providers rigidly follow the criteria of abortion outlined in the law, some other providers adopt a more liberal approach, notably for displaced women. Such a form of flexibility may be vital in humanitarian circumstances, when rigorous adherence to the abortion legislation may impede access to safe abortion care services.

Beyond legislative improvements, the availability of free abortion services in public health facilities has substantially encouraged internally displaced women to seek safe abortion services. Prior research shows that eliminating financial barriers is crucial for enhancing access, particularly for economically disadvantaged people.[33] Additionally, some NGOs have aided internally displaced women by subsidising the expenses of abortion operations, either partly or totally. However, these financial subsidies are not always available, creating gaps in care for some of the most vulnerable women.

Furthermore, the existence of temporary clinics that offer reproductive care and the presence of referral connections allowed displaced women to obtain abortion services. This finding is similar to a previous study finding that integrating sexual and reproductive health (SRH) services in refugee contexts, connected with strong referral networks, considerably enhances care usage.[34] On top of that, the alliance and cooperation among NGOs operating in the camps have been demonstrated to increase service accessibility for refugees. Findings from Cox's Bazar[35] complement our finding, where healthcare professionals saw collaboration between groups working on SRH resulting in improved service delivery and outcomes.

Barriers to safe abortion services

The results of the qualitative research indicate how deeply ingrained sociocultural ideas, primarily religious beliefs, impact how internally displaced women regard abortion. Many research participants thought abortion was morally unacceptable or evil. This is comparable to previous research results, where religious beliefs typically determine opinions toward abortion.[36-38]

The anxieties owing to prejudice and social stigma further impede women's access to safe abortion services. The prejudice and social stigma are entrenched in cultural and religious traditions, suggesting that community-driven discussions might eventually modify attitudes on abortion. However, to stably transform the community's views on abortion, it is essential to promote gender equality and eliminate gender-based power imbalances.[39] As shown previously, community-

driven initiatives have decreased abortion stigma via participatory methods, but these strategies have not yet been deployed in refugee situations.[40]

Our studies also identified a lack of social support, with social stigma preventing larger camp community assistance. This gap in social support needs additional research. Low quality of care was highlighted as another key obstacle. Participants cited difficulties connected to poor quality of care, such as limited privacy, shortages of equipment, and treatment delays. These constraints coincide with research results in the humanitarian setting. For instance, research in Cox's Bazar, Bangladesh,[35] and among Congolese refugees in Uganda,[13] demonstrate that breaches of confidentiality and a lack of privacy hinder refugee women from accessing reproductive health care. Participants also expressed dissatisfaction about delayed and inadequate treatment, underlining the need to develop friendly, refugee women-centred healthcare atmospheres. Economic barriers, such as travel fees, also discourage some women from seeking safe abortion methods. As previous studies' finding demonstrates, financial support may make abortion services more accessible to women who want abortion care. For instance, Thailand's Safe Abortion Referral Program (SARP) gives funds to cover both abortion operations and associated fees. This has allowed women to access safe abortion care.[41] Fatemi F and Moslehi S[40] also demonstrated that Self-managed abortion (SMA) programs lessen financial constraints and minimise confidentiality concerns, eventually boosting women's access to safe abortion services.

In the present research, the lack of information about the available safe abortion services and choices surfaced as a key concern. Internally displaced women were unclear about where, when, or how to receive safe abortion services. While research on the knowledge about abortion among displaced persons in LMICs is sparse,[14] the most recent review shows knowledge gaps as substantial impediments to receiving reproductive health services among refugees and IDPs.[42] These results show the urgent need for awareness programs that give genuine information on available safe abortion services.

Lastly, uncertainties regarding abortion regulation and fear of legal claims, such as prosecution and jail, were considered to be extra difficulties. Such kinds of challenges have been reported among Congolese refugees in Uganda, where strict abortion laws intensify anxiety and deter women from receiving safe abortion services.[13] emphasizing the dire need for unambiguous and readily available information on abortion laws.

Limitations of the study

The research has several shortcomings, including a significant disparity in socio-demographic variables between respondents and their best friends, suggesting that the best friend method may not provide a representative sample. Additionally, respondents without best friends were found to be more illiterate, multiparous, and non-users of modern contraception, indicating social isolation. The best friend method's validity was also questioned by identifying lower usage of long-acting reversible contraception (LARC) by best friends compared to respondents. This could be due to reluctance to disclose information or the belief that abortion is a necessary decision in dire conditions. Further research is needed to explore this phenomenon.

Conclusion

In conclusion, compared to self-reported induced abortion, the best friend approach yielded a higher rate of induced abortion. However, the overlapping confidence intervals could indicate that the difference between the two estimates is not statistically significant. Beyond that, the inflated adjusted abortion estimate may imply a substantial underreporting of abortion among study participants, underscoring the limitation of the best friend approach in capturing the real magnitude of abortion incidence. To enhance abortion estimates in displaced settings, future research should use more anonymous and culturally sensitive approaches that may greatly reduce the stigma and anxiety connected to sharing abortion experiences. Above all, internally displaced women experience tremendous challenges in getting safe abortion services, and many of these challenges are amplified by the camp context. To expand access,

comprehensive efforts are necessary, including reducing stigma, lowering direct medical and non-medical costs, improving service quality, and raising awareness among displaced women and the broader camp population.

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Authors' contributions

KM conceptualised the proposal, wrote the first draft of the manuscript, developed data collection tools, analysed data, and reviewed the final manuscript. SS conceptualised the proposal, collected and analysed data, and reviewed and edited the final manuscript. SSY conceptualised the proposal, developed data collection tools, analysed data, and reviewed the final manuscript. All authors read and approved the final manuscript.

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