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Determinants of Repeated Induced Abortion among Women of Reproductive Age Seeking Post-Abortion Care in Addis Ababa, Ethiopia, 2022: Unmatched Case Control Study

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ABSTRACT

Background & aim: Repeated induced abortion (RIA) poses a significant risk to women's reproductive and mental health. Despite the high incidence of RIA in Ethiopia, there is limited analytical evidence, particularly using case-control designs, to identify its specific determinants among women seeking post-abortion care. This study aimed to investigate the determinants of RIA among women of reproductive age in public and private hospitals in Addis Ababa, Ethiopia, in 2022.

Methods: A hospital-based unmatched case-control study was conducted from June 1 to July 7, 2022. The sample included 336 women (112 cases: ≥ 1 previous induced abortion; 224 controls: first-time induced abortion). Data were collected via interviews using semi-structured questionnaires. Logistic regression was used to identify factors, with statistical significance set at $p < 0.05$ (95% Confidence Interval, CI).

Results: The response rate was 100%. The strongest determinants of RIA were: alcohol consumption (AOR=20.8; 95% CI 9.0, 48.1), not using contraceptives after previous abortion (AOR=7.8; 95% CI 3.0, 20.4), no education (AOR=7.97; 95% CI 2.2, 29.5), sexual gender-based violence (AOR=7.15; 95% CI 3.1, 16.3), elementary school education (AOR=3.4; 95% CI 1.2, 10.1), and having multiple sexual partners (AOR=3.01; 95% CI 1.4, 6.4). Abortion due to rape (AOR=6.4) and unplanned sex (AOR=3.1) were also significant factors.

Conclusion: RIA in Addis Ababa is strongly associated with behavioral (alcohol consumption, multiple partners), social, and structural (low education, contraceptive non-use) factors. Interventions should integrate reproductive health services with targeted counseling for alcohol use, sexual gender-based violence screening, and enhanced, mandatory post-abortion contraceptive counseling, particularly for low-literacy women.

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Introduction

Abortion is the termination of a pregnancy before the fetus reaches viability, which is generally defined as before 20 weeks of gestation or when the fetal weight is less than 500 grams. It can occur spontaneously (miscarriage) or be induced for medical or other reasons (1-2). An intentional attempt to end a pregnancy, carried out by a medical practitioner or the woman herself, is known as an induced abortion (3) and repeated induced abortion is defined as the occurrence of at least one previously induced abortion (4).

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There were 73.3 million abortions performed annually as of 2015–2019, with 63.8 million occurring in developing nations and 9.5 million in industrialized ones, respectively. There are 39 abortions per 1,000 women aged 15 to 44 worldwide, which is a much lower rate of unplanned pregnancy in developed regions than in developing ones (5). In the industrialized nation with a high socioeconomic standing, abortion is still taboo and there are no laws or regulations in place to stop unwanted pregnancies; 35 percent of women seeking abortions have had at least one prior abortion (6-7).

Unwanted pregnancies in Nigeria and Ethiopia are often terminated through abortion, with a significant number of patients reporting a history of induced abortion. In Ethiopia, a nationally representative study found a repeat abortion incidence of 35% among women seeking post-abortion care, while facility-based cross-sectional studies in Addis Ababa showed 31% of participants had repeated induced abortions (8-9).

Russia has some of the highest abortion rates in the world in 2014, especially for repeat abortions, which greatly increased the nation's high maternal death rate (10). Recurrences accounted for 60% of all abortions requested, according to a clinic-based survey, which is higher than the 36% in the UK in 2011. Repeat abortions are also linked to higher alcohol consumption and adverse future pregnancies (11-12). A research conducted in 2021 at 49 institutions spread across seven Chinese cities found that among single female students exposed to sexual activity, 31.8% became pregnant unintentionally, and 83.9% chose to have an induced abortion (13).

The abortion rate in sub-Saharan Africa has remained steady since 1995. Conversely, in Central and Southern Asia, it has increased from 40 abortions per 1000 women in 1990-1994 to 46 in 2015-2019. Adolescents with multiple children and prior pregnancies are vulnerable to experience a repeat abortion (14-16). In Ethiopia, adolescents who had illegal abortions were more likely to seek post-abortion care than those who had legal abortions (50% vs. 18%). Abortions of all ages increased from 27% to 53%, with 20% of abortions occurring in adolescents. Additionally, 96,000 abortions were performed by induction (17).

In Tigray 2017, women seeking abortion-related services had a 30% chance of having repeat abortions, according to statistics from public and commercial institutions (16, 18). A study at Hawassa University in Ethiopia focused on unwanted pregnancy and induced abortion to avoid stigma. However, most studies in Ethiopia on health facilities, reproductive health services, and abortion-related issues were under-researched (19). Repeated induced abortion is a rising issue in developing countries, with millions of women still facing it. Many Ethiopian women in the reproductive age range still struggle with this problem, even though the 2005 revision to the abortion law resulted in a decrease in admissions linked to abortion.

While the burden of repeated induced abortion (RIA) is recognized in Addis Ababa, there is a distinct lack of high-quality analytical studies, such as case-control designs, that identify the specific determinants including both risk and protective factors underlying this behavior among women accessing post-abortion care. Moreover, data on multiple risk factors for women undergoing repeat abortion are often not systematically recorded, limiting the ability to examine group variations and their relationship to recurrent abortion. There are currently no national guidelines or policies specifically aimed at preventing repeat induced abortion, and most existing studies focus narrowly on either public or private health facilities. Addressing this knowledge gap is critical for policy-makers and program implementers to design effective interventions at both facility and community levels, reduce health system burden, and optimize resource allocation (12, 16-17, 20). Therefore, the objective of this study was to determine the determinants of repeated induced abortions among women of reproductive age in Addis Ababa, Ethiopia.

Materials and Methods

The study was conducted from June 1 to July 7, 2022, in Addis Ababa, which has 14 public hospitals and 37 private and non-governmental health facilities providing abortion services. For this hospital-based study, ten facilities were

selected to represent different types and ownerships of service providers. To ensure diversity across facility types, a stratified sampling approach was employed: facilities were first grouped by ownership/affiliation (public hospitals under the Federal Ministry of Health, university hospital, specialized federal institutions such as Armed Forces, Federal Prison, Federal Police, and private hospitals). From each stratum, facilities were then randomly selected by balloting. The final sample included four public hospitals, one university hospital, three federal institutions (Armed Forces, Federal Prison, Federal Police), and two private hospitals, providing a representative mix of service settings for the study (21).

The study included women of reproductive-age (15–49 years) in Addis Ababa who sought care for intentionally induced abortions. Women were excluded if they were seriously ill, had not intentionally terminated the pregnancy, or presented with a spontaneous abortion/miscarriage.

The sample size was determined using Open Epi info version 7.2 statistical software package. The main exposure variable was mothers having abortion-related characteristics, which was not effective among controls (5.9%) and cases (17.1%). By using study result found in Tigray region with a 95% CI, 80% power, and control to case ratio of 2:1.with 3.28 odds ratio gave sample size of 306 (16).

After adding 10% to nonresponse rate, 112 cases and 224 controls (total sample size of 336) involved in the study (16).

Cases were women seeking PAC services who had at least one previous induced abortion. Ten hospitals offering abortion services were chosen at random by balloting among the Addis Ababa city administration; the number of participants interviewed was distributed proportionately among the hospitals based on the average number of induced abortion cases handled over the previous three months. The process of systematic sampling was used to choose the participants.

Women seeking PAC services for a current induced abortion but with no history of previous induced abortions. Controls were selected from the same hospitals as the cases, and partcipants were interviewed proportionally based on each hospital's average abortion care attendance over the previous three months. The participants were selected through systematic sampling. Due to the lack of documented information on clients' cards, the study used 30% of the three months total abortion care services (30% of 919 total three months comprehensive abortion care services) resulting in 275.7 repeated abortion care services and 643.3 first abortion care services in the last months (Table 1).

Abortion type (repeated or newly induced abortion) was the outcome variable, and socio-demographic and economic characteristics, contraceptive practices; reproductive health characteristics, behavioural factors, and gender-based violence were independent variables.

Data were collected using an interviewer-administered semi-structured questionnaire that consists of five parts (Socio-demographic, Contraceptive, reproductive health, substance abuse and risky sexual behaviour and gender-based violence characteristics) from June 1 to July 7, 2022. The questionnaire was first prepared in English, then translated into Amharic, and back-translated into English by qualified individuals to check for consistency. This study used a structured questionnaire adapted from different studies (9, 16, 22). The tool was pre-tested among 6 cases and 12 controls in Ghandi General Hospital, and necessary modifications were made for the local context before the final data collection.

The study used binary and multivariable logistic regression to analyze data on repeated induced abortions. The binary logistic regression was used to describe the association between independent and dependent variables with P-value ≤ 0.25, while the multivariable logistic regression was used to identify factors determining outcome variables (23). All independent variables were considered statistically significant at a P-value < 0.05. The final model was fitted using the Hosmer-Lemeshow Goodness of Fit test and it had 0.68, and multicollinearity was checked using VIF and it resulted with range of 1.53 to 4.29.

Table 1. Women of total induced abortion cases from June to July 7, 2022 and allocated required sample size for each randomly selected hospital with code of hospital

Code of hospital	Name of Hospital	Number RIA and Relative Frequencies		Allocated sample size	
		Number	Relative frequency	Case	Control
01	St. Paul's specialized RH	509	55.3%	61	122
02	Menellik II Referral Hospital	41	4.46%	5	10
03	Ras desta Damtew memorial General Hospital	124	13.49%	15	30
04	Zewditu MGH	133	14.47%	16	32
05	Amin General Hospital	7	0.76%	1	2
06	Land-mark General Hospital	7	0.76%	1	2
07	BGM Mothers and pediatrics center	9	0.98%	1	2
08	T/Haymanot General Hospital	42	4.57%	5	10
09	Afran Primary Hospital	19	2.06%	3	6
10	Hemen MCH hospital	28	3%	4	8
	Total	919	100%	112	224

*RIA= Repeated Induced Abortion

The results were presented as adjusted odds ratios (AOR) with 95% confidence intervals, and p-values less than 0.05 were considered statistically significant. The study used a simple, easily understandable questionnaire translated into Amharic for data quality assurance. Data collectors underwent training before data collection. Pre-tests were conducted in other hospitals, with modifications made as needed. Supervisors monitored data collection, correcting issues and rechecking data completeness. Data was checked during data entry, and cleaning was performed for consistency. Inconsistencies were addressed using a hard questionnaire. Data analyses were conducted after cleaning.

Prior to data collection, Ethical review committee board of the Yekatit 12 Hospital and Medical College authorized letters of ethical clearance and approval bearing protocol number 129/22, and authorization bearing reference number from the City of Addis Ababa Health Bureau 14861/227. All study participants provided their informed consent. The confidentiality and privacy of participant information were guaranteed under the Helsinki Declaration.

Results

Socio-demographic characteristics of study participants

A total of 336 study participants were involved in the study that makes 100% response rate. The mainstream of study were from city areas 92(82%) of cases and 191(85.3%) for controls. Over half of the participants were single: 67 (59.8%) among cases and 126 (56%) among controls (P=0.194). More than one third 95(42.4%) of controls and 46(41%) of cases did not earn their own income (P=0.815). Forty-five cases (40%) and one hundred controls (44.6%) were women who current occupation responded as employed (P = 0.174).

More than one-third of participants had an elementary school education: 25 cases (22.3%) and 71 controls (31.7%) (P<0.001). Additionally, 12 cases (10.7%) and 24 controls (10.7%) had no formal education (P < 0.001).

Contraceptive service utilization of Reproductive age women

Majority 101(90%) of cases and 206(92%) of controls had awareness of modern family planning counselling according to the study. About three fourth (76%) of cases and majority (88.4%) of controls had access to modern family planning, as well as two-third (62%) of cases and more than three-fourth (80%) of controls had ever used family planning. Majority of both cases (85.5%) and controls 86.18%) used short acting family planning. More than one-fourth (27.6%) of both cases and controls did not use family planning due to different reasons (wants

to pregnant, family pressure, no awareness of family planning, and predominantly fears of side effects in both cases and controls). One third (21.4% of cases and 16.5% of controls) had one child and above.

Substance Abuse and risky sexual behavioural of Reproductive age women

Three-fourth 37 (33%) of cases and more than one-fourth 63 (28%) of controls had their first sexual experience prior to turning eighteen years. Early marriage status was 3% for cases and 5% for controls that was at or before the age of 18years old. One-third of the study participants (cases) had history of sexually transmitted infections, and 20.5 % (controls) of them had vaginal discharge. About sexual partners, 83 (74%) of cases and 95 (42%) of controls had two or more sexual partners ever, and nearly two third 71 (63.4%) of cases and 29 (13%) of controls had consumed alcohol currently or previously. Majority of controls 80% and 67.6% of cases wanted to have children in the future.

Gender based violence status of study participants

Two-third 75 (67%), almost near to two-third 67 (60%), and more than half 65 (58%) of cases had experiencing (previous history of sexual, psychological, and physical gender-based violence according to the study respectively. Moreover, 22.0% of all controls had also experienced physical, psychological, and sexual gender-based, and two thirds of cases were sexual intercourse victims when compared to controls.

Factors Affecting Repeated Induced Abortion

To identify the variables influencing the repeated induced abortions, bivariate and multivariate logistic regression models were employed. Lone variables with a P-value ≤ 0.25 (age, occupation, marital status, parity, educational level, use of the FP method, FP used after previous abortion, reason for abortion, smoking cigarettes, chat chewing, alcohol drinking, sexual intercourse at or before 14 years of age, having more than one partner, physical violence, psychological violence, and sexual violence) were encompassed in the multivariate regression.

After using multivariate regression to account for any confounding variables, educational level, FP used after previous abortion, reason for abortion, alcohol consumption, having multiple sexual partners, and sexual violence stayed meaningfully related with repeated induced abortion ($p < 0.05$).

The odds of not using contraceptives after previous abortion were 7.8 times higher among women who had repeated induced abortions (AOR=7.8; 95% CI =3.008, 20.425) when compared to women with single induced abortions. The odds of perceiving family planning is not effective was 6.4 times higher among women who had repeated induced abortions (AOR=6.4; 95% CI=1.93, 21) when compared to women with single induced abortion and unplanned sex (AOR=3.1; 95% CI=1.31, 7.33) and raped women (AOR=6.4; 95% CI=1.93, 21) when compared to their counterparts. Furthermore, drinking alcohol (AOR=20.8; 95% CI=8.98, 48.1), having multiple sexual partners (AOR=3.01; 95% CI=1.423, 6.4), sexual gender-based violence (AOR=7.15; 95% CI=3.144, 16.27), elementary school (AOR=3.4; 95% CI=1.15, 10.13) no education (AOR=7.97; 95% CI=2.156, 29.5) were associated factors with repeated induced abortions in Addis Ababa.

The odds of not using contraceptives after previous abortion was 7.8 times higher among women with repeated induced abortion than among women with first time induced abortion (AOR = 7.8; 95% CI 3.008, 20.425). The odds of family planning is not effective was 6.4 times higher among women with repeated induced abortion when compared to women with first time induced abortion (AOR = 6.4; 95% CI=1.93, 21) and unplanned sex (AOR=3.1; 95% CI=1.31, 7.33) and raped women (AOR=6.4; 95% CI=1.93, 21) when compared to their counterparts. The odds of ever drinking alcohol were 20.8 times higher among women with repeated induced abortions when compared to women with first time induced abortions (AOR =20.8; 95% CI =8.98, 48.1).

The chances of having multiple sexual partners were 3.01 higher among women with repeated induced abortions when compared to those with newly induced abortions (AOR=3.01; 95% CI=1.423, 6.4). The odds of having sexual

gender-based violence was 7.15 times higher among women with repeated induced abortions than among their complements (AOR=7.15; 95% CI=3.144, 16.27). The odds of having elementary school was 3.4 times higher among women with repeated induced abortions compared to their counterparts (AOR=3.4; 95% CI=1.15, 10.13), and the odds of having no education was 7.97 times higher among women with repeated induced abortions than among those with first time induced abortions (AOR=7.97; 95% CI=2.156, 29.5) (Table 2).

Table 2. Multivariable logistic regression model depicting the determinants of repeated induced abortion in Addis Ababa selected Hospitals, 2022

Variable	Repeated induced abortion		COR (95%CI)	AOR (95%CI)	P-Value
	Yes	No			
	N (%)	N (%)			
FP used after previous abortion					
Yes	47(73.44)	17(26.56)	1	1	<0.001
No	65(23.90)	207(76.10)	8.80(4.733,16.4)	7.80(3.01,20.43)	
Reason for abortion					
FP not effective	60(48)	65(52)	1	1	0.131
Relative pregnancy	8(40)	12(60)	1.39(0.53,3.62)	3.8(0.67,21.5)	0.002
Raped	14(26.42)	39(73.58)	2.57(1.271,5.2)	6.4(1.93,21)	0.010
Unplanned sex	24(19.83)	97(80.17)	3.70(2.11,6.59)	3.1(1.31,7.33)	0.015
Others	6(35.29)	11(64.71)	1.69(0.59,4.86)	8.8(1.53,50.6)	
Have you ever drunk alcohol in life time					
Yes	71(71)	29(29)	1	1	<0.001
No	41(17.37)	195(82.63)	11.6(6.73,20.14)	20.8(8.98,48.10)	
Sexual gender-based violence					
Yes	75(59.06)	52(40.94)	1	1	<0.001
No	37(17.70)	172(82.30)	6.705(4.06,11.06)	7.15(3.14,16.27)	
Having multiple sexual partner					
Yes	83(46.63)	95(53.37)	1	1	0.004
No	29(18.35)	129(81.65)	0.83(0.52,1.32)	3.01(1.42,6.40)	
Educational status					
College &above	33(57.89)	24(42.11)	1	1	0.458
Secondary school	13(34.21)	25(65.79)	2.64(1.13,6.28)	1.62(0.451,5.8)	0.027
Elementary school	25(26.04)	71(73.96)	3.91(1.95,7.80)	3.40(1.15,10.13)	0.235
Read &write	29(39.73)	44(60.27)	2.10(1.03,4.22)	2.01(0.63,6.40)	0.002
No education	12(16.67)	60(83.33)	6.88(3.05,15.50)	7.97(2.16,29.50)	

Reference for logistic regression was represented by 1, COR-crude odds ratio, AOR-Adjusted odd ratio, CI-confidence interval

Discussion

This study aimed to determine the factors of repeated induced abortion in post-abortion care in Addis Ababa hospitals. Consequently, no education or elementary school educational status, not using contraceptives after previous pregnancy termination, reason for abortion (FP is not effective, raped, and unplanned sex), alcohol consumption, and sexual gender-based violence were associated with repeated induced abortions in multivariable logistic regression.

This result was comparable to that of a study in Sweden (6) but not consistent with studies conducted in Ethiopia, Russia, Northwest China, and Keny (6, 9, 11, 13). The discrepancy may be due to differences in socioeconomic factors, cultural contexts, and access to reproductive health services across study populations.

Among the socio-demographic factors, education of the mothers those who could read and write and elementary school were significantly associated with an increased odd of

repeated induced abortion. Women with primary and no education had higher risks of having repeat-induced abortions than those with a single induced abortion. This discovery is consistent with those of previous studies in Sweden, Western Nigeria, Addis Ababa university (Ethiopia), Russia, Northern China, Kenya, and Debra Marcos (Ethiopia) (8, 9, 11-13, 20). The likely explanations for the higher odds of repeat-induced abortion among uneducated women may be the differences in the socio-demographic characteristics of the participants and the setting from which the study participants were selected (19, 24), However, this finding was not consistent with the study conducted at Mery Stop Clinic in Addis Ababa (25) which serves only abortion clients, unlike our study, which included participants from multiple hospitals.

The odds of women who had not contraceptive used after previous pregnancy termination almost more than five times odds of repeated induced abortion than their counterparts, this finding was in line with findings from previous studies in Sweden, western Nigeria, Ethiopia and Kenya (8, 9, 20). These could include concerns about adverse impacts, incomplete or inaccurate information, partner objections, and conflicts with religious convictions., lack of contraceptive use, and lack of contraceptive counselling for women who seek induced abortion and unplanned sexual intercourse, but are not consistent with a previous study, which (11) may be because the knowledge of having a primary abortion leads to a surge in alcohol use. This paradoxical relationship may be due to the choice of contraceptive and less effective methods. The Second reason, common of the defendants (90%) were aware of some methods of contraception. This compares well with 97.7% reported in South-Western Nigeria (8). Despite this high level of awareness, only 42% of the women had tried contraception after the last abortion, showing a great gap between awareness and usage; the overall conclusion would be that knowledge does not necessarily translate into attitudinal change where contraception usage is concerned (20). The reasons given by women presenting with repeat-induced abortion for not using contraceptives in this study were similar to those in most other studies. A study of post-abortion care (PAC) in public health facilities in Ethiopia indicated that only two of ten women asked for contraceptives during post-abortion care visits, and providers offered information on contraception to approximately half of all women (16).

Concerning reproductive health factors, the odds of perceiving family planning were not effective; raped and unplanned sex were at a higher odd of repeated induced abortions than their reverse counterparts. This finding is supported by studies conducted in Northern Ethiopia (12, 16). However age at first marriage and sex, history, knowledge of STIs and screening, spacing children, current and previous ways of inducing abortion and who did abortion were not statistically. These results are similar to those of previous studies (8), but are not consistent with those of a previous study in Ethiopia, Western Nigeria, Kenya, and Ghana (4, 9, 11, 13-14). This discrepancy may be attributed to differences in study design and sampling, as variations in how participants are selected and the type of study conducted can significantly affect the findings.

Among behaviour-related factors, the odds of alcohol drinking and having multiple sexual partners were significantly associated with amplified probabilities of repeated induced abortions compared to newly induced abortions. This finding is in agreement with those of previous studies in Debra Birhan, AAU, Russia, Kenya, northern Ethiopia, and Debra Marcos (4, 9, 11, 13, 16, 26). A likely clarification for this propensity may be the increased probability of condom failure and place of residence consistent to an increased number of sexual intercourses. The other reason might be due to the fact that having multiple sexual partners made these women in an unbalanced association, which leads to uneven use of contraceptives that cause contraceptive failure and unwanted pregnancy, and the impact of alcohol on the logical thinking of women, which might lead them to have unprotected sex.

However, chat chewing, sexual intercourse at or before 14years of age, hearing, and engaging in commercial sex work were not statistically associated with repeated induced abortions. This result was similar to that of previous studies in Ethiopia(16) but not consistent with the findings of a previous study in Ethiopia (9). This

discrepancy may be explained by differences in the research location, participant backgrounds, cultural differences between nations, and the high prevalence of family planning in wealthy nations.

The odds of having sexual gender-based violence were more likely observed among women with repeated induced abortions (AOR = 7.15; 95% CI =3.14, 16.27) than among women with newly induced abortions. This finding is consistent with those of previous studies conducted in Ethiopia (26). However, this finding is inconsistent with that of a previous study conducted in Sweden (20). However, exposure to physical and psychological violence was not statistically associated with repeated-induced abortion and did not persist in the regression model as an independent odd factor for repeat-induced abortion. This difference may be due to the limited number of women in the sample being exposed to violence or abuse.

The study highlights the issue of repeat induced abortion in Ethiopia and calls for government and civil society to increase efforts to reduce unintentional pregnancy and repeated induced abortion. There are no guidelines or policies for preventing this issue, and there is a lack of literature on the topic. One method could be to provide improved admission to reproductive health and contraception knowledge to women and their partners, promoting correct and consistent contraception practices, and preventing gender-based violence. Health promotion messages should focus on improving women's knowledge about contraceptives and recording and reporting repeated induced abortions on separate registers. Clients should be educated on the impact of induced abortion and the consequences of alcohol consumption and multiple sexual partners during post-abortion care.

The study's strengths include the use of an unmatched case-control design, to reduce the influence of confounding factors and focus on potential health service interventions. Direct interviews with clients minimized missing medical records and recall bias. The study included both public and private hospitals, as abortion is more common in private hospitals. This design also enabled the study to address potential confounders effectively.

The study has some limitations. It may not fully represent the factors associated with repeated induced abortions in the broader community, and the data could have been affected by recall bias or incomplete medical records. In addition, the sample size was relatively small, which may limit the generalizability of the findings.

Conclusion

This study recognized numerous factors associated with repeat-induced abortions in Addis Ababa, Ethiopia. Low educational level, contraceptive use after previous abortion, aim for abortion (either due to not using contraception, rape, or unplanned sex), alcohol consumption, and sexual-based violence were associated with an increased odd of repeated induced abortions. Hereafter, policy makers and decision makers must focus on health promotions messages that focus on improving women's knowledge about significant determinants, such as formal education, reasons for abortion, gender-based violence, and behavioural factors like alcohol drinking. Family planning counselling should be based on accessibility, feasibility, affordability, safety, and sustainability.

Declerations

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Conflicts of interest

The authors declared no conflicts of interest.

Ethical considerations

Informed written consent was obtained from study subjects, and the data were collected anonymously. Participants were informed of the purpose of the study and their right to refuse or answer the questionnaire, and they were given the choice to stop or withdraw at any time during data collection. To maintain confidentiality, names and personal identification were omitted.

Code of Ethics

This study was conducted under the code of ethics received from Yekatit 12 Hospital Medical College with Protocol number: 129/22.

Use of Artificial Intelligence (AI)

N/A.

Funding

Yekatit 12 Hospital Medical College founded this study.

Authors' contribution

TW and TT conceptualized and designed the study and participated in preparing the last draft; JT prepared the last draft. AB wrote the first draft. TW and AB conducted the data analysis. TW, TT, JT and AB, performed data gathering. All authors approved and verified the last draft.

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