Prevalence and Associated Factors of Induced Abortion Among Women of Reproductive Age Group in Gondar Town, Northwest Ethiopia

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Abstract:
Background: Abortion is the termination of pregnancy by the expulsion of a fetus or embryo from the uterus before viability. An estimated 56 million induced abortions occurred worldwide each year. Ethiopia has the fifth highest number of maternal deaths in the world: one in twenty-seven women die from complications of pregnancy and childbirth annually. Objective: To assess the prevalence of induced abortion and associated factors among women of reproductive age group in Gondar Town, Northwest Ethiopia. Methods: A descriptive cross-sectional study design was conducted in 450 reproductive age women, using a pre-tested and structured questionnaire with face-to-face interview, from January 01 to August 07, 2018. Respondents were randomly selected using systematic random sampling method. Descriptive analysis, binary and multivariable logistic regression analysis were used to analyze the data. Results: In this study, the prevalence rate of induced abortion was 40 per 1000 women, making it higher from the previous national rate of abortion for Ethiopia (28/1000 women aged 15-44). Among respondents those are committing induced abortions, 83.33% was safe abortion. Factors like women’s age at first pregnancy (15-19 years [AOR (Adjusted Odds Ratio) = 4.38, 95% CI (1.21, 15.81)]; single marital status [AOR = 45.05, 95% CI (12.02, 168.85)]; unwanted pregnancy [AOR = 3.21, 95% CI (1.16, 8.90)] and attending school at the time of interfered abortion [AOR = 5.28, 95% CI (1.80, 15.49)] were significantly associated with committing induced abortion. Conclusions: The study revealed a medium level of prevalence rate of induced abortion among women of reproductive age group in Gondar Town. Factors like women’s age at first pregnancy, single marital status, unwanted pregnancy and attending school at the time of interfered induced abortion were independently and significantly associated with committing induced abortion.

Keywords: Induced Abortion, Prevalence, Women of Reproductive Age, Ethiopia

1. Introduction

Abortion is a termination of pregnancy by the expulsion of a fetus or embryo from the uterus before viability [1]. It can occur spontaneously or it can be induced [1-2]. World Health Organization defines induced abortion as a purposeful termination of pregnancy prior to twenty weeks for developed countries and twenty-eight weeks for developing countries [3]. Induced abortion can be safe or unsafe. Unsafe abortion is a procedure for terminating pregnancy either by a person lacking the necessary skills or in an environment lacking minimal medical standards or both [3-4].

Globally, an estimated 56 million induced abortions occurred each year. In all, safe abortion and unsafe abortion estimated as 55% and 45% each year, respectively [5]. Among the direct cause of maternal death in the world, unsafe abortions account eight percent of overall maternal
deaths; at least 22,800 women die annually from complication of unsafe abortions [2, 5]. According to recent estimates, the global annual rate of abortion for all women of reproductive age is 35 per 1,000 [5]. Each year, approximately 210 million women became pregnant and around one in ten pregnancies ends in an unsafe abortion Worldwide [4, 6]. Almost all abortion-related deaths occur in developing countries, with the highest number occurring in Africa [5].

In Africa, the overall annual abortion rate is 34 per 1,000 women [5]. An estimated annual number of unsafe abortions in Sub-Saharan Africa for women of reproductive age are 5.5 million [4, 6]. As many as 36,000 of these women die from the procedure, while millions more experience short or long term complications [2, 4]. Unsafe abortion is the leading cause of maternal mortality in Africa [2, 7]. Unsafe abortions continue as a risk factor to a woman’s health even if it is preventable [2, 4].

In East Africa, annual abortion rate for all women of reproductive age is 34 per 1,000 [8].

Ethiopia has the fifth highest number of maternal deaths in the world: one in twenty-seven women die from complications of pregnancy and delivery annually [9]. Recently, Ethiopia performed an estimated 620, 300 abortions. This corresponds to an annual rate of twenty-eight abortions per 1,000 reproductive aged women, an increase from twenty-two per 1,000 women in 2008 [8]. Previously, an estimate of Ethiopian maternal mortality rate was 676 deaths per 100,000 live births [10]. Of 3.27 million pregnancies in Ethiopia, 620,300 end in either spontaneous or induced abortion every year [11]. From those women committed induced abortions, majority of them were seeking treatment for complications of abortion. About forty-two percent of women had unintended pregnancy in Ethiopia [12]. Low contraceptive utilization lead to high levels of unintended pregnancy, the root cause of abortion [9]. Abortion rate is highest in urban areas of Ethiopia: ninety-two per 1,000 women in Addis Ababa and seventy-eight per 1,000 in smaller regions of Ethiopia like Harari and Dire Dawa [8].

Reasons in order to commit induced abortions are either for therapeutic or elective purpose [2, 6]. Therapeutic abortion is performed to save the life of the pregnant woman; whereas, an elective abortion is performed at the request of the pregnant woman for non-medical reasons [2]. Legalizing abortion is highly debatable issue among policymakers throughout the world since illegal abortions have high mortality and morbidity rates in women of reproductive age group [2, 13]. In developing countries, the risk of death following complications of unsafe abortion procedures is many times higher than that of an abortion procedure performed under safe conditions [2, 14]. Therefore, Ethiopia expanded abortion law in 2005, which had previously allowed the procedure only to save the life of a woman. Committing abortion is legal at this time in Ethiopia under certain criteria: rape, incest, fetal impairment, if the pregnancy endangers her or her child’s life, continuing the pregnancy or giving birth endangers her life or if she is unable to bring up the child, owing to her status to a physical or mental infirmity [9, 11]. Although the new law of abortion has implemented, almost six in ten abortions are unsafe in Ethiopia [9, 11].

As evidenced from previous studies, the reasons of unsafe abortion after unwanted pregnancy are inability to support self, having enough children, being very young, and being in school [6, 15-17]. Inability of getting adequate access of contraception services is one of themain risk factor for unsafe abortion problems in the World [6, 18]. Unsafe abortion is one of the main neglected problems of health care in developing countries. This makes the major medical and public health problem in Ethiopia [6, 11]. Increasing the quality of safe abortion services and informing the communities about risks of unsafe abortions are important aspect for reducing maternal mortality and morbidity and prevention of complications related to unsafe abortion [19]. This study findings give valuable information to policymakers, researchers and concerned bodies and important to formulate and design appropriate strategy for interventions. Therefore, the aim of this study is to assess the prevalence rate of induced abortion and associated factors among women of reproductive age in Gondar Town, Northwest Ethiopia.

2. Methods and Materials

2.1. Study Design and Settings

A community based descriptive cross sectional study design was undertaken and the study was conducted in Gondar Town, Central Gondar Zone, Amhara Region, Northwest Ethiopia from January 01 to August 07, 2018. According to 2017 national reports conducted by the Central Statistical Agency of Ethiopia, Gondar Town has a total population of 360,600, of which 184,007 are women and 176,593 are men. The Town has 21 kebeles (local), 1 Referral Hospital and 8 governmental Health Centers [20].

2.2. Sample Size and Sampling Technique

The sample size was calculated using a single population proportion formula; by considering P-value 50% (since there is no similar study conducted in the study setting), at 95% confidence interval (CI), 5% margin of error and 20% non-response rate (77 women to increase precision). \( n = \frac{z(1-\alpha/2)^2}{P(1-P)/d^2} \) (\( n = 384 \) women). Therefore, the final sample size was 461 women.

This study utilized a lottery method (simple random sampling) to select six from twenty-one kebeles (namely, kebele 4, 7, 16, 17, 18 and 19) and systematic random sampling methods to select the study participants. The sample size for each of the selected kebeles was allocated proportionally to the size of the women of reproductive age group (15-49 years) of each kebele. Besides, the \( k^{th} \) interval (\( k = 43 \)) was calculated by using the estimated number of women of reproductive age group to the sample size (the
number of reproductive age women for sampling frame was obtained from each kebele’s health extension workers). All randomly selected women of reproductive age group who live for the last six months in the selected kebeles and having at least one pregnancy history during data collection period were included in the study.

2.3. Study Variables

Induced abortion is a dependent variable. Independent variables include socio-demographic variables: women’s age, religion, ethnicity, marital status, educational status, occupation and monthly income of the family. And, reproductive and maternal related variables: women’s age at first pregnancy, number of pregnancies, number of children alive, family size, weather pregnancy is wanted and attending school at the time of interfered abortion.

2.4. Data Collection Tools Techniques and Procedures

Data were collected by direct face-to-face interview using structured Amharic version questionnaire about prevalence of induced abortion and associated factors among women of reproductive age group. The questioner was first prepared in English and translated into Amharic (local language) and back to English to keep consistency of meaning (Supplementary material 5). Data collection questionnaire was adapted from tools used to assess induced abortion prevalence in different literatures to satisfy the objectives of this study. The questionnaire has four sub-topics. Of them: socio-demographic, reproductive and maternal and prevalence related characteristics (Supplementary material 4). Trained clinical nurses collected the data.

2.5. Data Processing and Analysis

The collected data were checked for completeness, accuracy and clarity. The collected data were entered, cleaned, validated and analyzed by the investigators using SPSS version 20 (Statistical Package for Social Sciences). The information that needs coding was coded and missing values were considered before analysis. As result, findings were presented in the form of text, tables and graphs using frequencies and summary statistics. The outcome variable, induced abortion was coded as No=0 and Yes =1. Descriptive analysis was done to describe the frequency and percentage of dependent and independent variables. Binary logistic regression and multivariable logistic regression analysis were done to describe the association between dependent and independent variables and independent predictors of prevalence of induced abortion. Crude odds ratio and adjusted odds ratio were used for testing of the association between independent and dependent variables. Covariates that have P-value of <0.05 at the bivariate analysis were included in the multivariable logistic regression to control all possible confounding factors. Overall, a P-value less than 0.05 were considered statistically significant association.

2.6. Data Quality Control and Management

The questionnaire was pre-tested in similar setting by principal investigators prior to the data collection on five percent of total sample size (23 women) at one of kebele, which was not the part of the main study. Revisions and adjustments were made after pre-test: some unnecessary questions were excluded and missed questions were incorporated. The collected data were also crosschecked on each day of activity for consistency and completeness. Additionally, data collectors were trained and close supervision was made during the data collection.

2.7. Ethical Consideration

This study was reviewed and approved by ethical review board of MTY Abyssinia Medical Science College. Ethical clearance was obtained from the ethical review committee of MTY Abyssinia Medical Science College Research and Publication Office (Supplementary material 3). The purpose of the study was described to all women, and all information obtained from them was secured and kept confidential (Supplementary material 1). To ensure confidentiality, the names were avoided from the questionnaire. Written or oral (For those unable to read and write) informed consents were obtained from respondents who participated in the study (Supplementary material 2).

3. Results

3.1. Socio-Demographic Characteristics of Study Participants

Four hundred fifty women of reproductive age group were involved in the study (response rate = 97.61%), of whom 142 (31.6%) were 25-29 years. Of the total respondents, majority of them were Amhara in ethnicity (91.3%), Orthodox in their religion (73.6%), marriage (85.8%) and degree and above holder in their education (23.6%). About half of respondents were homemakers in occupation (59.9%) (Table 1).

| Characteristics | Frequency (n=450) | Percent (%) |
|----------------|------------------|-------------|
| Age of the respondent (in years) | | |
| 15-19 | 23 | 5.1 |
| 20-24 | 116 | 25.8 |
| 25-29 | 142 | 31.6 |
| 30-34 | 71 | 15.8 |
| 35-39 | 67 | 14.9 |
| 40 and above | 31 | 6.9 |
| Ethnicity | | |
| Amhara | 411 | 91.3 |
| Oromo | 12 | 2.7 |
| Tigray | 27 | 6.0 |
| Religion | | |
| Orthodox | 331 | 73.6 |
| Muslim | 86 | 19.1 |
| Catholic | 9 | 2.0 |
| Protestant | 24 | 5.3 |
3.2. Reproductive and Maternal Characteristics

The majority of the respondent’s age at first pregnancy (46.2%) was from 20-24 years. Among all respondents, 56.0% had 1-2 number of pregnancies, 71.8% had 1-3 number of live children, 51.3% had 4-6 number of family size, 67.6% were their pregnancy wanted and 70.0% were not attended school at the time of interfered (Table 2).

3.3. Induced Abortion Prevalence and Related issues

Of 450 respondents, 5.8% were ever had any previous abortions. About 96.15% of respondents had 1-2 numbers of abortions. In all, 4.0% of respondents had induced type of abortion (40 per 1000 women). Among respondents having induced abortions, 83.33% was safe abortion. The most visited place for committing induced abortion was health institutions (83.33%). Trained health workers (83.33%) were the common doer of committing induced abortions (Table 3).

3.4. Factors Associated with Induced Abortion

3.4.1. Socio-Demographic Related Factors

Binary logistic regression showed that respondents age 15-19 years and single marital status were factors associated with the prevalence of induced abortion. Variables which show statically significant association (P≤0.05) in binary logistic regression were entered to multivariable logistic regression to rule out confounders. The odds of having induced abortion were 45 times [AOR =...
45.05 (12.02, 168.85) greater for women with a single marital status as compared with women of married marital status (Table 4).

Table 4. Bivariate and multivariable logistic regression analysis on socio-demographic factors associated with induced abortion among women of reproductive age in Gondar Town, Northwest Ethiopia, 2018.

| Characteristics          | Induced abortion | Crude OR (95% CI) | Adjusted OR (95% CI) | P-value** |
|--------------------------|------------------|-------------------|----------------------|-----------|
| Age of the respondent (in years) |                  |                   |                      |           |
| 15-19                    | 17               | 10.59(1.17,95.47)* | 11.00 (0.83, 146.4) | 0.004     |
| 20-24                    | 108              | 2.22(0.27, 18.47)  | 1.91 (0.17, 21.25)  | 0.60      |
| 25-29                    | 141              | 0.21(0.01, 3.50)   | 0.17 (0.01, 3.38)   | 0.24      |
| 30-34                    | 70               | 0.43(0.03, 7.08)   | 0.23 (0.01,4.76)    | 0.34      |
| 35-39                    | 66               | 0.46(0.03, 7.51)   | 0.61 (0.03, 13.17)  | 0.75      |
| 40 and above             | 30               | 1.00              | 1.00                 |           |
| Ethnicity                |                  |                   |                      |           |
| Amhara                   | 396              | 0.47(0.10, 2.19)   | -                    |           |
| Oromo                    | 11               | 1.14 (0.09, 13.89) | -                    |           |
| Tigray                   | 25               | 1.00              | -                    |           |
| Religion                 |                  |                   |                      |           |
| Orthodox                 | 320              | 0.79 (0.10, 6.40)  | -                    |           |
| Muslim                   | 81               | 1.42 (0.16, 12.77) | -                    |           |
| Catholic                 | 8                | 2.88 (0.16, 51.53) | -                    |           |
| Protestant               | 23               | 1.00              | -                    |           |
| Marital status           |                  |                   |                      |           |
| Married                  | 381              | 1.00              | 1.00                 | <0.001    |
| Divorced                 | 19               | 4.01(0.45, 36.05)  | 4.05(0.40, 41.44)    | 0.24      |
| Single                   | 24               | 34.93(11.23, 108.63)* | 45.05(12.02,168.85)* | <0.001    |
| Widowed                  | 8                | 9.53(1.00, 91.13)* | 5.08(0.46,56.31)    | 0.18      |
| Educational status of respondent |            |                   |                      | 0.13      |
| Unable to read and write | 64               | 1.07 (0.18, 6.60)  | -                    |           |
| Able to read and write   | 28               | 1.23 (0.12, 12.25) | -                    |           |
| Primary Education        | 25               | 1.37(0.14, 13.77)  | -                    |           |
| Junior                   | 42               | 1.64(0.26, 10.14)  | -                    |           |
| Secondary Education      | 65               | 1.06(0.17, 6.49)   | -                    |           |
| Preparatory Education    | 53               | 1.30 (0.21, 7.99)  | -                    |           |
| Certificate and Diploma holder | 52     | 3.30(0.76, 14.35)  | -                    |           |
| Degree holder and above  | 103              | 1.00              | -                    |           |
| Occupation of the respondent |            |                   |                      |           |
| House wife               | 225              | 1.00              | -                    |           |
| Merchant                 | 43               | 3.92(0.85, 18.16)  | -                    |           |
| Government employee      | 89               | 3.16(0.83, 12.04)  | -                    |           |
| Daily labourer           | 18               | 3.13(0.33, 29.45)  | -                    |           |
| Farmer                   | 7                | 8.04(0.79,81.51)   | -                    |           |
| Student                  | 41               | 4.12 (0.89,19.07)  | -                    |           |
| Private employee         | 9                | 6.25(0.63, 61.74)  | -                    |           |
| Monthly income (In Ethiopian Birr) | |                   |                      |           |
| ≤600                    | 34               | 2.21 (0.35,13.91)  | -                    |           |
| 601 – 1650              | 99               | 1.25(0.24, 6.74)   | -                    |           |
| 1651 – 3200             | 84               | 0.38(0.03, 3.37)   | -                    |           |
| 3201 – 5250             | 87               | 0.86 (0.14, 5.34)  | -                    |           |
| 5251 and above           | 78               | 1.28 (0.23, 7.26)  | -                    |           |
| No income                | 50               | 1.00              | -                    |           |

Key: * statistically significant at p-value <0.05 in binary and multivariable logistic regression analysis, P-value** for multivariable logistic regression analysis; COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio.

3.4.2. Reproductive and Maternal Related Factors

Binary logistic regression showed that respondent’s age at first pregnancy, unwanted pregnancy and attending school at the time of interfered were factors associated with prevalence of induced abortion.

Variables that show statically significant association in binary logistic regression were entered to multivariable logistic regression to rule out confounders. The odds of becoming 15-19 years age at first pregnancy were 4 times [AOR=4.38, 95% CI (1.21, 15.81)] more likely to commit induced abortion as compared to respondents with 25 and above years of age. The odds of having unwanted pregnancy were 3 times [AOR=3.21, 95% CI (1.16, 8.90)] more likely to commit induced abortion as compared to respondents having wanted pregnancy. Odds of attending school during interfered were 5 times [AOR= 5.28, 95% CI (1.80, 15.49)] more likely to commit induced abortion as compared to respondents without attending school (Table 5).
4. Discussion

This community-based study conducted to determine the prevalence and identify factors associated with induced abortion in Gondar Town. Accordingly, women’s age at first pregnancy, marital status, unwanted pregnancy and attending school at the time of interfered were independently and significantly associated with the prevalence of induced abortion.

In this study, the prevalence rate of induced abortion was 4.0% (40 per 1000 women). This finding is almost in line with findings from Wolaita Sodo University 6.5% [21] and Dabat and Adet study 4.8% [20]. However, this study finding is lower than the findings from Nigeria 10% [22], Eritrea 11% [23], Guraghe Zone, Ethiopia 12.3% [6] and Harar, Ethiopia 14.4% [24]. The possible explanations could be women committing induced abortion usually have unstable marital relationship, and have not completed their education unlike the older age groups [6]. Young women below 24 years were more likely to have sexual intercourse than young men in the same age group. Pregnancy related health risks are much higher among women under 18 years and these girls almost five times more likely to die during pregnancy and delivery than women aged 20-24 years [20]. The odds of having induced abortion were forty-five times greater for women with a single marital status compared with women of married marital status. This finding is in agreement with the study conducted in Gambella Hospital [26], Dabat and Adet [20], Harar [24] and Jimma Ethiopia [28]. The possible explanation could be due to some single girls become pregnant from their spouse before marriage without knowing their parents so that fear of the family and the community predisposes them for committing induced abortion. The odds of having induced abortion were three times greater for women having unwanted pregnancy compared with women having wanted pregnancy. This finding is in line with the study in Guraghe Zone [6] and Addis Ababa [29]. The possible explanation could be women committing induced abortion usually have unplanned or unwanted pregnancy as well as there is lack of knowledge about contraception and its utilization. On the other hand, women decided to have fewer children, they will use contraceptive methods to limit their children [6]. Pregnancy during attending school positively associated with committing induced abortion. This finding is similar to another study in Jimma, Ethiopia [28]. This may be related with their plan of ending their school before having child and other related factors. Education is one of the main reasons to dislike the pregnancy [6].
One of the strengths of this study was a large sample. This increases the representativeness (precision) of the source population. In addition, this study is community-based by randomly selecting study participants. These differences make induced abortion prevalence difference among with other previous studies.

5. Conclusion

The findings of the present study summarized as:

The study revealed a medium level of prevalence rate of induced abortion among women of reproductive age group in Gondar Town.

Factors like women’s age at first pregnancy, single marital status, unwanted pregnancy and attending school at the time of interfered induced abortion were independently and significantly associated with committing induced abortion.

Generally, focusing on factors predicting the likelihood of induced abortion (Like unwanted pregnancy) is one of the recommendations for Gondar Town Health Office, policymakers and other concerned bodies to reduce the prevalence rate of induced abortion.

Declarations

Ethics Approval and Consent to Participate

This study was reviewed and approved by the ethical review board of MTY Abyssinia Medical Science College. Ethical clearance was obtained from the ethical review committee of MTY Abyssinia Medical Science College Research and Publication Office (Supplementary material 3 as reference number MTYAMSC/11337/2010). The purpose of the study was described to all women, and all information obtained from them was secured and kept confidential (Supplementary material 1). Data were collected from all women who had given their written or oral (for those unable to read and write) informed consent to participate in the study (Supplementary material 2). The names of ethical review committee that approved the study were Mr. MisganawDagnaw, Mr. MullatAgegnihu and Mr. TakeleMessfine (Supplementary material 3 as reference number MTYAMSC/11337/2010).

Consent for Publication

“Not applicable”.

Availability of Data and Materials

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Author Contribution

MO: Conceptualization, formal analysis, investigation, methodology, supervision, visualization, writing-original draft, writing-review and editing, and approving the final draft; AM: Conceptualization, formal analysis, investigation, methodology, supervision, editing, and approving the final draft.

Supplementary Materials

Supplementary material1. Confidentiality and informed consent statement
Supplementary material 2. Consent form
Supplementary material 3. Ethical clearance
Supplementary material 4. English data collection checklist
Supplementary material 5. Amharic version data collection checklist

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