Cross-sectional Study

Multilevel analysis of factors associated with pregnancy termination in Ethiopia

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ABSTRACT

Background: Pregnancy termination is a major public health issue that affects maternal mortality around the world. So the study aimed to identify factors that are associated with pregnancy termination in Ethiopia.
Methods: Community-based crossectional data came from Ethiopia's Mini Demographic and Health Survey 2019. The current study's sample included women who had their pregnancy terminated (aged 15–49) and had complete information on all factors of interest (N = 8885). The binary logistic regression model investigated the factors that contribute to pregnancy termination in Ethiopia and multilevel logistic regression were used to identify regional variation in Ethiopia.
Results: The current study showed that the prevalence of pregnancy termination in Ethiopia was 8.6%. The likelihood of pregnancy termination in uneducated women was 1.5 times (AOR = 1.479, 95% CI = 1.205–1.816) lower than in women who attended elementary school, 1.5 (AOR = 1.476, 95% CI = 1.107–1.969) lower than Secondary attended women and 1.8 times (AOR = 1.755, 95% CI = 1.270–2.427) lower than Higher school attended women. The likelihood of pregnancy termination in rural women was 0.8 times (AOR = 0.753, 95% CI = 0.573–0.990) higher than in urban women.
Conclusion: The current study showed that there was regional Variation among women in Ethiopia to terminate the pregnancy. The characteristics of education level, place of residency, marital status and contraceptive knowledge are significant and differ between regions of the country. As a result, increasing contraception use and enhancing women's knowledge are the most effective ways to avert the problem.

1. Introduction

Pregnancy termination before the 28th week of pregnancy after the last normal menstrual cycle or a birth weight of less than 1000 g m is known as pregnancy termination [1]. Pregnancy termination, also known as induced abortion, is the deliberate medical or surgical termination of a viable fetus, while spontaneous abortions, also known as miscarriages, occur when an embryo or fetus is lost due to natural causes [2]. Approximately 73.3 million induced abortions were done annually globally between 2015 and 2019, with 45% of these abortions being conducted unsafely. Developing nations, like Ethiopia, accounted for nearly half of these unsafe abortions. More than 98% of all unsafe pregnancy terminations occurred in developing nations [3,4].

Every year, over 210 million women become pregnant, with one in every ten pregnancies terminating in an unsafely induced abortion around the world [5]. Around the world, an estimated 68,000 women die each year as a result of unsafe abortions, with another 5.3 million

suffering severe or permanent disability. Unsafe abortion is the major cause of maternal death and morbidity in underdeveloped nations. The poor world bears the highest burden on the highest burden [6].

The annual abortion rate for all women of reproductive age in East Africa is 34 per 1000. Ethiopia has the fifth-highest maternal death rate in the world, with one in every twenty-seven women dying each year from complications during pregnancy and childbirth [7]. Ethiopia is one of Sub-Saharan Africa's low-income countries with the highest maternal morbidity and death rates. According to the 2016 Ethiopia Demographic and Health Survey, the maternal mortality rate in Ethiopia was 412 deaths per 100,000 live births (2016 EDHS) [8,9].

Pregnancy termination is strongly linked to socioeconomic, demographic, and household behavioural factors, as well as cultural considerations. Several studies have looked into mother age and discovered that education is substantially linked to pregnancy termination [10–14]. Pregnancy termination is directly linked to educational success. Women with a greater level of education were more likely to have an abortion

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[10–12]. Pregnancy termination is also influenced by maternal media exposure, contraception use, and women's autonomy [13,14], marital status [15,16], birth order, parity [13] and religion [10]. Women who were exposed to the media and who did not utilize contraception were more likely to have an abortion. Also, there is a clear link between occupation and abortion [13,16].

Despite several programs and attempts to expand access to safe pregnancy terminations clinics, roughly six out of every ten pregnancy terminations in Ethiopia are still dangerous [17]. Despite the gravity of the problem, little is known about the causes that cause women to abort their pregnancies. Because no research has been done in Ethiopia to account for regional diversity, more work is needed to discover the parameters that measure success toward long-term development goals. As a result, this study aims to identify factors that are associated with pregnancy termination in Ethiopia.

2. Methods

2.1. The source data set and study design

This analysis used data from the 2019 EMDHS, a cross-sectional survey conducted between March 21 and June 28, 2019. The EMDHS was designed to provide health and demographic data for nine geographical regions and two administrative cities.

2.2. Sampling

In two stages, the 2019 EMDHS sample was stratified and selected. There were 21 sampling strata in each region divided into urban and rural areas. In two steps, EA samples were picked individually in each stratum. At each of the lower administrative levels, implicit stratification and proportional allocation were achieved by sorting the sampling frame within each sampling stratum before sample selection, according to administrative units at different levels, and selecting a probability proportional to size at the first stage of sampling. Face-to-face interviews with women who satisfied the eligibility requirements (women aged 15–49 years) were used to collect data. All reproductive age group women (15–49 years) who have terminated a pregnancy five years before the survey and who replied to the women's EMDHS questionnaire in 2019 make up the study population. Individual interviews were conducted with 9012 eligible women from the interviewed households; 8885 women were considered to identify factors associated with pregnancy termination in Ethiopia.

2.3. Inclusion and exclusion criteria

The sole qualifications were to be an Ethiopian national between the ages of 15 and 49, to have given birth in the five years before the interview, and to have lived in Ethiopia during the pregnancy. This study excluded mothers with any mental condition and mothers who refused to participate. Based on the above inclusion and exclusion criteria, 8885 mothers were interviewed with a 100% response rate, and 127 mothers out of 9012 reproductive-aged women were left out of the study.

3. Study variables

3.1. Dependent variable

Pregnancy termination was dependent variable, which was dichotomized as "yes" if a woman has ever terminated and "no" if the responder has not terminated in the previous five years. As a result, the Z_i woman's reaction variable (pregnancy termination) is a binary indicator variable of the response, such that

$$Z_i = \begin{cases} 1 \ \textit{if ever terminated pregnancy} \\ 0 \ \textit{if no ever terminated pregnancy} \end{cases}$$

3.2. Independent variables

Based on Several Literature reviews, Region, residence, Education Level, Religion, wealth index, Knowledge of Contraceptive use, Marital Status, health worker counselling, age, and indicators of complications of pregnancy were all used as predictors [18–20].

3.3. Operational definition

Pregnancy Termination: intentional induced abortion, by any means or person other than spontaneous.

Contraceptive: Contraception, often known as birth control, is a method of preventing pregnancy.

3.4. Statistical analysis and processing

The data was analyzed using SPSS version 26 statistical software (IBM SPSS Statistics). Descriptive statistics such as frequencies and percentages were used to summarize the sample's background characteristics. To see if there is an association between the dependent and independent variables, binary logistic regression was used. All variables with a p-value of less than 0.25 in the bivariate analysis were chosen for the multivariable logistic regression to compensate for putative confounders. Significant predictors were defined as factors with a p-value of less than 0.05. The Multilevel Logistic Regression Model (MLRM) was used because of the hierarchical nature of the data collection. This includes both fixed and random effects [21]. The model's fixed effects/measures of relationships were assessed using binary logistic regression, providing odds ratios (ORs) and adjusted odds ratios (AO On the other hand, Intra-Cluster Correlation hand, was utilized to examine random effects changes measures (ICC) [22].

3.5. Research ethics

Ethics approval and consent to participate in Ethical clearance for the 2019 EMDHS was provided by the Ethiopian Health and Nutrition Research Center (EHNRI) Review Board, the National Research Ethics Review Committee (NRERC) at the Ministry of Science and Technology, the Institutional Review Board of Inner City Fund (ICF) International, and the Centers for Disease Control and Prevention (CDC). The requirement for obtaining informed consent was waived by Ethiopian Health and Nutrition Research Center (EHNRI) Review Board, but the data were kept anonymous and confidential. This study was conducted by the Helsinki Declaration. The work has been reported according to STROCSS criteria [23]. researchregistry8048 (https://www.research registry.com/browse-the-registry#home/).

4. Results

4.1. Socio-demographic characteristics

A total of women in the fertility age of 8885 populations from the EMDHS 2019 dataset 8885 (100%) had given their responses with a mean of 0.09 and a Standard Deviation of 0.285. The current study showed that the prevalence of pregnancy termination in Ethiopia was 8.6%. Out of 8885 women, 733 (8.2%) were Tigray, 641 (7.2%) were Affar, 948 (10.7%) were Amhara, 1052 (11.8%) were Oromia, 1008 (11.3%) were SNNPR and 818 (9.2%) were Addis Ababa. The majority were from rural 5934 (66.8%) and urban 2951 (33.2%) of Ethiopia. The majority of the women 3800 (42.8%) were uneducated, 3261 (36.7%) were in primary School, 1089 (12.3%) were in Secondary School and only 735 (8.3%) were in higher school. From a total population of

women of fertility age, 3374 (38%) were orthodox, 78 (0.9%) were Catholic, 1711 (19.3%) were Protestant, 3635 (40.9%) were Muslim, 60 (0.7%) were traditional and 27 (0.3%) were the followers of others. Most of the women in a given population were between the ages of 15–19 2103 (23.7%), from 20 to 24 1540 (17.7%), from 25 to 29 1682 (18.9%), from 30 to 34 1133 (12.8%) and 35 to 49 were 2223 (25.02%).from a total population, 3388 (38.13%) were poor, 1404 (15.8%) were middle and 4092 (46.06%) were rich wealth index household.

Table 1 shows a summary of the explanatory variables and the proportion of women who had ever terminated a pregnancy. Pregnancy termination in the Affar region was 5.77% and in Addis Ababa 13.20%. Pregnancy termination was higher in the Gambella region (7.62%) while pregnancy termination was lower in the Tigray region (2.73%). The majority of urban women were terminated pregnancy (9.94%) while the rural was lower than urban women (8.45%) of pregnancy Termination. A woman whose uneducated was a lower rate of pregnancy termination (0.77%) while higher school women's pregnancy termination rate was high (11.32%). For women in who richest wealth index the pregnancy termination rate was high when compared to other wealth index households (10.08%). The women who have signs of Complications in pregnancy had high rates of pregnancy termination than those with no signs of pregnancy Complications (24.05%) as well as the women Counselling Health workers were high pregnancy termination rate (10.93%). more than half of urban residents women (70.23%) were terminated pregnancies while lower than half of rural residents women (39.16%) were terminate their pregnancies. Women who knew about Contraceptive use (3.55%) terminate their pregnancies while those with no knowledge of Contraceptive use women (30.03%) were terminate their pregnancies.

4.2. Multilevel binary logistic analysis of the pregnancy termination

The multilevel analysis used a two-level framework, with regions as second-level units and individual mothers as first-level units. To account for and analyze regional variability in pregnancy termination, multilevel models were used. The data is structured in a hierarchical two-level structure, with 8885 mothers on level 1 and 11 regions on level 2.

Any variable with a significant univariate test at any arbitrary level is included in the analysis. With a p-value cut-off point of 0.25, the Wald test from logistic regression is used. The factors of Region, education level, place of residence, Religion, Pregnancy Complication, Marital Status and Knowledge of Contraceptive use are statistically significant and the Number of children they have were insignificant at the alpha of 0.25 (Table 2).

4.3. Factors that contribute to the variability in pregnancy termination in Ethiopia

Individual factors have varied impacts in different places, hence the model can be generalized. We fixed explanatory variables in the Final model to allow all variables that were significant in the intercept model (Model 1) to vary across regions (clusters), however, the connection between explanatory and response variables can alter in numerous ways between areas. The multilevel binary logistic regression model with random effects was used initially to account for clustering. The model is expected to describe the impacts of geographical variation (heterogeneity). The variance of the random intercept at the region level of ICC showed that pregnancy termination per mother varies by region (Table 4).

The characteristics of education level, place of residency, religion, pregnancy complications, marital status, and contraceptive knowledge are statistically significant and differ between regions of the country, according to the multilevel binary logistic regression model. When other variables were controlled for and the intercept parameter was allowed to vary across regions, the likelihood of pregnancy termination of uneducated women was 1.5 times (AOR = 1.479, 95% CI = 1.205–1.816)

Table 1

Socio-demographic characteristics of pregnancy termination in fertility age in Ethiopia.

Variables	Category	Frequency (%)	Ever Terminated Pregnancy	
			No	Yes
Region	Tigray	738 (8.2)	713 (97.27%)	20 (2.73%)
	Affar	641 (7.2)	604 (94.23%)	37 (5.77%)
	Amhara	948 (10.7)	903 (95.25%)	45 (4.75%)
	Oromia	1052 (11.7)	974 (92.67%)	77 (7.33%)
	Somalia	640 (7.2)	616 (96.70%)	21 (3.30%)
	Benishangul gumuz	747 (8.4)	600 (92.88%)	46 (7.12%)
	SNNPR	1008 (11.3)	899 (90.44%)	95 (9.56%)
	Gambella	723 (8.1)	655 (92.38%)	54 (7.62%)
	Harari	763 (8.6)	696 (92.92%)	53 (7.08%)
	Addis Ababa	818 (9.2)	710 (86.80%)	108 (13.20%)
	Dire Dawa	812 (9.1)	742 (91.38%)	70 (8.62%)
Residence	Urban	2951 (33.2)	2645 (29.77%)	292 (70.23%)
	Rural	5934 (66.8)	5406 (60.84%)	499 (39.16%)
Education	No education	3800 (42.8)	3555 (99.23%)	238 (0.77%)
	Primary	3261 (36.7)	2864 (88.64%)	367 (11.36%)
	Secondary	1089 (12.3)	982 (90.50%)	103 (9.50%)
	Higher	735 (8.3)	650 (88.68%)	83 (11.32%)
Religion	Orthodox	3374 (38)	3083 (91.65%)	281 (8.35%)
	Catholic	78 (0.9)	67 (85.90%)	11 (14.10%)
	Protestant	1711 (19.3)	1439 (87.42%)	207 (12.58%)
	Muslim	3635 (40.9)	3347 (92.28%)	280 (7.72%)
	Traditional	60 (0.7)	51 (85.0%)	9 (15.0%)
	Other	27 (0.4)	24 (88.89%)	3 (11.11%)
Wealth Index	Poorest	1982 (22.3)	1800 (91.05%)	177 (8.95%)
	Poorer	1406 (15.8)	1284 (91.60%)	118 (8.40%)
	Middle	1404 (15.8)	1307 (93.09%)	97 (6.91%)
	Richer	1724 (19.4)	1553 (90.50%)	163 (9.50%)
	Richest	2368 (26.7)	2106 (89.92%)	236 (10.08%)
Age of respondents	15–19	2103 (23.7)	1853 (88.36%)	244 (11.64%)
	20–24	1540 (17.7)	1395 (91.20%)	135 (8.80%)
	25–29	1682 (18.9)	1520 (91.02%)	150 (8.98%)
	30–34	1133 (12.8)	1026 (91.20%)	99 (8.80%)
	35–39	996 (11.2)	915 (92.15%)	78 (7.85%)
	40–44	697 (7.8)	64 (55.17%)	52 (44.83%)
	45–49	530 (6)	496 (93.76%)	33 (6.24%)
Counselling Health Worker	No	8352 (94)	7579 (91.14%)	737 (8.86%)

Table 1 (*continued*)

Variables	Category	Frequency (%)	Ever Terminated Pregnancy	
			No	Yes
	Yes	532 (6)	432 (89.07%)	53 (10.93%)
Sign of pregnancy	No	7631 (86)	6998 (92.10%)	600 (7.90%)
	Yes	1240 (14)	600 (75.95%)	190 (24.05%)
Marital Status	Never in union	2822 (31.8)	2510 (89.64%)	290 (10.36%)
	Married	5204 (58.6)	4751 (91.65%)	433 (8.35%)
	Living with partner	97 (1.1)	87 (89.69%)	10 (10.31%)
	Widowed	206 (2.3)	193 (93.69%)	13 (6.31%)
	Divorced	383 (4.3)	346 (90.58%)	36 (9.42%)
Contraceptive Knowledge	No	6837 (76.9)	6217 (69.97%)	589 (30.03%)
	Yes	2048 (23.1)	2768 (96.45%)	102 (3.55%)

Table 2

Background characteristics of univariate Results of pregnancy termination in Ethiopia.

Variables	Category	Estimate	P-Value
Region			
	Tigray		.000
	Affar	.781	.000
	Amhara	.575	.006
	Oromia	1.036	.036
	Somalia	.190	.000
	Benishangul Gumuz	1.828	.549
	SNNPR	1.326	.000
	Gambella	2.292	.000
	Harar	.999	.000
	Addis Ababa	1.691	.000
	Dire Dawa	1.213	.000
Education Level			
	No Education		.000
	Elementary	.649	.000
	Secondary	.449	.000
	Higher	.646	.000
Residence			
	Rural		
	Urban	−.179	.021
Religion			
	Orthodox	1	.000
	Catholic	.589	.076
	Protestant	.429	.000
	Muslim	−.086	.330
	Traditional	.661	.072
	Others	.316	.608
Pregnancy Complication			
	No		
	Yes	.756	.000
Marital Status			
	Never in union	1	.016
	Married	−.237	.003
	Living with partner	−.005	.988
	Widowed	−.540	.066
	Divorced.	−.105	.573
Contraceptive Knowledge			
	No		.001
	Yes	1.057	.000
Number of Children	0	−.841	.347
	1	−.724	.188
	2	−.726	.257
	3	−.807	.258
	4	−1.755	.220
	5	−1.540	.068

Table 3

Multilevel Logistic Regression results from the 2019 EMDHS show characteristics related to Pregnancy Termination among women aged 15–49 (n = 8842).

Category	Estimate	P-Value	AOR 95% CI
Region			
Tigray		.000	
Affar	.680	.036	1.973 (1.044–3.728)
Amhara	.608	.040	1.838 (1.028–3.284)
Oromia	1.133	.000	3.105 (1.780–5.417)
Somalia	.154	.667	1.167 (0.578–2.354)
Benishangul Gumuz	1.997	.000	7.364 (4.313–12.573)
SNNPR	1.513	.000	4.538 (2.608–7.897)
Gambella	2.435	.000	11.418 (6.721–19.395)
Harar	1.131	.000	3.097 (1.732–5.539)
Addis Ababa	2.046	.000	7.733 (4.483–13.340)
Dire Dawa	1.308	.000	3.698 (2.105–6.497)
Education Level			
No Education		.001	
Elementary	.392	.000	1.479 (1.205–1.816)
Secondary	.390	.008	1.476 (1.107–1.969)
Higher	.563	.001	1.755 (1.270–2.427)
Residence			
Rural			
Urban	−.283	.042	.753 (0.573–0.990)
Religion			
Orthodox			
Catholic	−.058	.970	.986 (0.482–2.016)
Protestant	−.038	.646	.943 (0.736–1.210)
Muslim	.263	.739	.963 (0.769–1.205)
Traditional	−.356	.529	1.300 (0.575–2.941)
Others	−.014	.587	.701 (0.194–2.533)
Pregnancy Complication			
No			
Yes	.746	.000	2.108 (1.723–2.579)
Marital Status			
Never in union		.006	
Married	.828	.000	2.288 (1.441–3.633)
Living with partner	.048	.940	1.049 (0.302–3.651)
Widowed	.762	.388	2.142 (0.379–12.099)
Divorced.	1.300	.015	3.668 (1.293–10.405)
Contraceptive Knowledge			
No		.032	
Yes	−.314	.002	0.572 (0.401–0.818)

Table 4

Model comparison and random effect distribution on pregnancy termination in Ethiopia.

Random effect model comparison	Model 0	Model 1	Final Model
Variance	0.448	0.412	0.367
Inter-cluster correlation (ICC)	0.12	0.11	0.10
Log-likelihood ratio (LLR)	48633	48489	33646
AIC	48635	48491	33648
BIC	48642	48498	33656
Proportional change in variance (PCV)	Reff	0.08	0.12

AIC: Akaike information criterion; BIC: Bayesian information criterion.

lower than women who attended elementary school, 1.5 (AOR = 1.476, 95% CI = 1.107–1.969) lower than Secondary attended women and 1.8 times (AOR = 1.755, 95% CI = 1.270–2.427) lower than Higher school attended women. The likelihood of pregnancy termination in rural women was 0.8 times (AOR = 0.753, 95% CI = 0.573–0.990) higher than in urban women. The likelihood of pregnancy termination of Orthodox followers women was 0.99 times (AOR = 0.986, 95% CI = 0.482–2.016) higher than followers of Catholic, 0.9 times (AOR = 0.943, 95% CI = 0.736–1.210) higher than protestant, 0.9 times (AOR = 0.963, 95% CI = 0.769–1.205) lower than Muslim, 1.3 times (AOR = 1.300, 95% CI = 0.575–2.941) higher than traditional and 0.7 times (AOR = 0.701, 95% CI = 0.194–2.533) higher than others followers women. The likelihood of pregnancy termination of no complication sign in pregnant women was 2.1 times (AOR = 2.108, 95% CI =

1.723–2.579) lower than that of women with sign pregnancy Complications. The likelihood of pregnancy termination Never married women was 0.3 times (AOR = 2.288, 95% = 1.441–3.633) lower than married women, 1.05 times (AOR = 1.049, 95% CI = 0.302–3.651) lower than Living with partner, 2.1 times (AOR = 2.142, 95% CI = 0.379–12.099) lower than Widowed and 3.67 times (AOR = 3.668, 95% CI = 1.293–10.405) lower than Divorced. The likelihood of pregnancy termination with no knowledge of Contraceptive use was 0.56 times (AOR = 0.572, 95% CI = 0.401–0.818) higher than knew Contraceptive use women (Table 3).

4.4. Model comparison and random effects (measures of variations)

The empty model (Model 0) revealed that inter-cluster variation of the characteristics accounts for 12% of the overall variance in pregnancy termination (ICC = 0.12). The overall variance in pregnancy termination increased in the intercept model (Model 1) due to inter-cluster heterogeneity in the variables (11%). This suggests that regional disparities in pregnancy termination are largely due to variances or variations in variables (Table 4). The Final model has a lower computed deviation, AIC, and BIC value than the empty model (Model 0) and intercepts model (Model 1). In comparison to the empty model (Model 0) and intercept model (Model 1, the Final model fits well to identify the variables that affect Pregnancy termination to differences between and within regions.

5. Discussion

This study aimed to identify factors associated with pregnancy termination in Ethiopia by using Multilevel. The result from multilevel logistic regression analysis showed that education level, place of residence, Religion, Pregnancy Complication, Marital Status and Knowledge of Contraceptive use are statistically significant and differ between regions of the country. Across regions, there was a large variance in pregnancy termination. According to the intra-class correlation coefficient (ICC), the region of mothers accounts for about 12% of the entire variation in pregnancy termination. The multilevel logistic regression analysis confirmed the significance of the regional difference in pregnancy termination in Ethiopia. The descriptive result of this study showed that the Pregnancy termination was 8.9%. This finding was lower as compared to the Previous Conducted study on SSA (16%) have ever terminated a pregnancy, with Sierra Leone having the lowest percentage at 9% and Gabon having the highest percentage at 39%. This is in the context of Sierra Leone's liberal abortion law, which allows abortion in certain circumstances [24] Gabon, on the other hand, has a severe abortion regulation [25].

The current study showed that educated women were more likely than no formal educated women to terminate a pregnancy. The higher a woman's education, The higher the percentage of pregnancy termination, which supports the findings of other Nepalese studies [26,27]. When compared to women with no formal education, those with secondary education had a larger chance of terminating their pregnancy. This is in line with previous research by Yaya et al. [28] and Chae et al. [29]. Women with secondary education are more likely to be exposed to abortion services and may be aware of sites or places where a pregnancy can be terminated. They might also learn about the risks of complications and the importance of having a safe abortion.

The current study revealed that there was Regional variation in the case of pregnancy termination in Ethiopia. From this study, Women living in Addis Ababa (13.20%) had terminated pregnancy greater rate than any other Region and Administrative City while women living in Tigray (2.73%) had terminated pregnancy lower rate than any other Region and Administrative City. The Ethiopian Demographic and Health Survey study found that women of reproductive age in Addis Ababa had the smallest optimum family size (3.6 children) and the lowest fertility rate (1.8) in the country [30,31]. Women in Addis Ababa who want to

have a small family might have their pregnancies terminated to space birth intervals or limit births.

The current showed that Knowledge of the Contraceptive method was a Major Factor in Pregnancy termination. This finding was supported by previously conducted studies in Ethiopia [32], Ghana [33] and Tanzania [34]. Knowing how to utilize contraception was a protective factor in preventing pregnancy termination. Pregnancy termination is more likely among women who are unaware of contraceptive use. Women with excellent contraceptive knowledge were less likely to have an induced abortion than those with poor contraceptive knowledge. This could be because women with insufficient contraceptive knowledge are unable to prevent unexpected pregnancies and hence seek induced abortion to avoid having undesired children.

The current study showed that Marital Status was a Major Factor in pregnancy termination. The current study showed the rate of pregnancy termination was high for married women than for never-married women This finding was supported by several other studies [35,36]. While some studies have revealed that unmarried women have a greater prevalence of pregnancy termination than married women [37–39]. Married women were less likely to terminate the pregnancy. A strong link between marital status and abortion has also been documented in some research [40,41] in which the probability of pregnancy termination is higher among women who were single or not married.

The current study showed that place of residence was a major significant factor in pregnancy termination. The pregnancy termination rate was high for urban than rural women. Some studies have revealed that urban women have greater abortion rates than rural women [40]. However, some research found no difference in the risk of abortion among urban and rural individuals [19].

5.1. Strength and limitation of the study

The retrospective nature of the EMDHS records is a concern with this approach and national dataset. The records are enormous and so can include large Scope. There are several limitations to this study that should be mentioned. First and foremost, pregnancy terminations are illegal in Ethiopia in all but a few circumstances, and female respondents may be hesitant to share information about their pregnancy termination experiences due to the legal ramifications. Furthermore, social desirability bias could influence these results due to the stigma involved with terminating a pregnancy. Other causes of bias included sample selection (due to the voluntary nature of participation) and dependence on self-reported data (given that accurate classification depends on respondent recall). Finally, as with any cross-sectional data, these results cannot be used to draw causal conclusions.

6. Conclusion

The current study showed that there was regional Variation among women in Ethiopia to terminate the pregnancy. Pregnancy termination was significantly associated with the Place of residence, education, knowledge of contraceptive use, marital status and Complication of pregnancy. The current study showed No formal educational attainments, who did not know contraceptive use, had complications of Pregnancy signs and those who were in rural residences were more likely to terminate the pregnancy. Therefore, reproductive health programs that focus on awareness creation of contraceptive methods use and family planning among women of the productive age group should give more attention to reducing pregnancy termination that is due to unwanted pregnancy. Furthermore, educating illiterate women would also be important to decrease the burden of maternal mortality as a consequence of pregnancy complications.

7. The implication of the study

Pregnancy termination is a touchy subject, especially when the

procedure is outlawed. This research adds to our understanding of a difficult-to-understand health issue. To reduce recollection bias, the study used a nationally representative dataset with responses limited to the five years before the survey. Finally, this research has crucial policy implications, such as the need to increase workplace support so that women do not have to choose between working and maintaining their pregnancies.

Ethical approval

Ethics approval and consent to participate in Ethical clearance for the 2019 EMDHS was provided by the Ethiopian Health and Nutrition Research Center (EHNRI) Review Board, the National Research Ethics Review Committee (NRERC) at the Ministry of Science and Technology, the Institutional Review Board of Inner City Fund (ICF) International, and the Centers for Disease Control and Prevention (CDC). The requirement for obtaining informed consent was waived by Ethiopian Health and Nutrition Research Center (EHNRI) Review Board, but the data were kept anonymous and confidential. This study was conducted by the Helsinki Declaration. The work has been reported according to STROCSS criteria.

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Author contribution

Birhanu Bedada Korsa = designed the study, Sebewudin Surur Jemal = Extracted data, and Getahun Dejene Yemane = Interpreted the results, and prepared and finalized the manuscript.

Registration of research studies

Name of the registry: Multilevel Analysis of Factors Associated with Pregnancy Termination in Ethiopia.

1. Unique Identifying number or registration ID: researchregistry8048
2. Hyperlink to your specific registration (must be publicly accessible and will be checked) (https://www.researchregistry.com/browse-the-registry#home/).

Guarantor

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Consent

Not Applicable.

Declaration of competing interest

The author(s) declared no potential Computing of interest to the research, authorship, and/or publication of this article.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.104120.

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