

# Women's knowledge of the legality of abortion and other determinants of abortion safety among women in Ghana: An Analysis of 2007 and 2017 Maternal Health Surveys

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## Research Article

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# Abstract

**Background:** Regardless of the existence of legal abortion services in Ghana, unsafe abortion remains a major health issue affecting the sexual and reproductive life of women. This study therefore examines the predictors of abortion safety among women in Ghana by comparing two different rounds of surveys.

**Methods:** The study used data from the 2007 and 2017 Ghana Maternal Health Surveys. A weighted sample of 552 (2007) and 1,880 (2017) women aged 15-49 whose activities related to their most recent induced abortion were selected. This study, however, limits the analysis to a subpopulation of women who terminated a pregnancy between 2002 and 2007 and 2012 and 2017. Binary logistic regression analysis was used to show the relationship between abortion safety and knowledge of legality of abortion. The statistical significance level was set at  $p < 0.05$ .

**Results:** The study found that there has been an increase in the proportion of women who know about the legality of abortion under some conditions in Ghana from 6.2% in 2007 to 10.7% in 2017. Again, the likelihood of unsafe abortion practices was high among women who had knowledge of legality of abortion in 2017 (AOR=1.85, C.I.:1.21-2.82) but not in 2007. Women who had secondary or higher education in 2007 (AOR=0.40, C. I: 0.19-0.84) and 2017 (AOR=0.44, C.I.:0.30-0.64), who were married in 2017 (AOR=0.70, C. I: 0.51-0.97) had lower odds of engaging in unsafe abortion practices. Similarly, women residing in urban areas in 2007 (AOR=0.29, C.I: 0.19-0.44) and 2017 (AOR=0.68, C.I: 0.54-0.85) and residing in the northern zone (AOR=0.10, C.: 0.01-0.98) were less likely to practice unsafe abortion. Again, partners of women who had favourable attitudes towards abortion in 2007 (AOR=0.38, C.I.:0.23-0.65) and 2017 (AOR=0.62, C.I.:0.47-0.81) were less likely to have unsafe abortion.

**Conclusion:** Increasing knowledge of legal status on abortion among women corresponded with a decrease in safe abortion practices over the decade (2007-2017), as the results suggest has implications for poor reproductive health outcomes and increased maternal mortality among women in Ghana. Factors likely to encourage unsafe abortion practices should be addressed to improve the safe sexual and reproductive health of women.

## Background

Globally, it is estimated annually that approximately 56 million induced abortions occur [1], of which approximately 55% use unsafe methods. Within the African region, it is estimated that close to 8.2 million women have abortions [2]. For instance, 34 per 1000 women in South, Middle and Eastern Africa and 31 per 1000 women in West Africa are estimated to have undergone abortion [3]. Globally, the use of unsafe abortion methods is more prevalent in settings where access to legal abortion services is highly controlled [4]. Unsafe abortion therefore contributes to 7.9 percent of maternal-related deaths and hence is a major cause of morbidity in women [5].

Ghana has a liberal abortion law since 1985 [6]. Thus, abortion may be allowed under some circumstances, such as rape, incest, and when the life of the mother or unborn child is at risk [7]. Despite

the liberalisation in the law, the use of unsafe abortion methods increased from 45 percent in 2007 to 62 percent in 2017 [7,8]. There have also been efforts by the government of Ghana to reduce the practice of unsafe abortion and as a strategy to reduce maternal mortality. This includes but is not limited to the introduction of the Reducing Maternal Mortality and Morbidity (R3M) program, which aimed at not only improving access to family planning services but also comprehensive abortion care services [7-9]. There has also been a high supply and availability of modern abortion medications, such as mifepristone and misoprostol, on the Ghanaian market [10,11]. These efforts, however, have barely impacted the reduction of the prevalence of unsafe abortion methods in Ghana [12].

The availability of abortion-related services, programmes and policies and the impact of these interventions may be influenced by some individual, household, community, sociocultural, political, economic and systemic factors [13-16]. Therefore, a vivid comprehension of abortion service provision and abortion safety (safe and unsafe) is paramount, especially in the context of negative perceptions and misconceptions surrounding abortion. Moreover, in recent times, there has been high recognition of the extent to which abortion safety implicates the sexual and reproductive life of women and the health care system [17].

Empirically, a large body of literature has identified predictors of safe methods [6,9, 18, 19,20]. and unsafe abortion practices [21-25]. Other studies also examine the association between women's knowledge of abortion law and the practice of induced abortion [26-29]. Furthermore, while some studies use hospital-based data to examine this phenomenon [27,30-32] and community-based surveys [26,28,33,34], others use nationally representative surveys [20, 25, 35, 36]. These previous studies did not fully explore and examine how socio-demographic and economic factors influence women's knowledge of the legality of abortion under some conditions (rape, incest, risk to mothers and foetus health) and how that interaction determines their safety in having abortion. Again, no study, to the best of our knowledge, has examined how factors affecting abortion safety and knowledge on the legality of abortion change over time using nationally representative data.

The present study seeks to examine how women's knowledge of the legal status of abortion and socio-demographic and economic factors influence abortion safety in Ghana by comparing the 2007 and 2017 Ghana Maternal Health Survey. Thus, the study explores and examines how women's socio-demographic and economic characteristics have shaped their knowledge of the legality of abortion under some circumstances and how that affects their abortion safety over a decade (2007-2017).

### **Brief overview of women's knowledge of the legality of abortion and abortion practices**

Towards the end of the 20<sup>th</sup> century, the issue of abortion was considered illegal in many countries with moral and religious connotations. It was also highly associated with health complications and deaths, especially when it is unsafely done [37].

However, in recent times, there has been liberalization of laws on abortion both in the developed and developing world, and Ghana is not an exception. These liberalizations came along with the promotion

and advocacy of modern contraceptive use to ensure the reduction in the unsafe abortion rate and its corresponding mortality [37,38].

In 1985, Ghana witnessed the repeal of the 1960 Criminal Code (Act 29), which gave birth to the Provisional National Defense Council (PNDC) Law 102 liberalising law on abortion in Ghana [39,40]. The new law states that induced abortion will only be accepted as legal under the following circumstances:

- a. If conception results from rape (non-consensual penetrative sexual intercourse)
- b. Defilement of a female minor (consensual or non-consensual sex with a girl below the age of 16 or mental disability)
- c. Incest (consensual or non-consensual sex with a female of blood relation)
- d. Pregnancy that is considered a threat to the health/life of the women or foetus

Studies have argued that these legal amendments and ramifications to Ghana's abortion law are open to many interpretations because of the wide application of social, mental and physical health used as a basis for practicing induced abortion [8,19]. These studies therefore suggested that there should be more liberalisation and amendments to abortion laws. This will empower women and enhance their right and ability to make an informed choice with regard to the abortion decision process. Meanwhile, the question is 'How well are women knowledgeable of the legalities surrounding the issue of abortion?' 'Even if they are well informed of the legalities of abortion, which factors (internal and external) can affect their safety in having an abortion?

Studies have attempted to provide a possible explanation for the above questions. For instance, a study by Gbagbo [27] in Ghana found that less than half of women had knowledge of the legality of abortion under some conditions. The study further found that this knowledge on legality of abortion was among women who were highly educated, and it influenced their decision to seek safe abortion services. Again, studies have indicated that women who knew abortion was legal under some circumstances were more likely to choose safe abortion methods [27, 41, 42].

Additionally, some studies argue that in an environment where strict cultural systems, moral and religious laws and conventions prohibit abortion practices, knowledge of the legality of abortion can be influenced by several factors at the individual, household, community, societal and national levels [16, 20, 22,23]. These factors include but are not limited to age [43], marital status [33], ethnicity [44], geographical location [45] and economic circumstances [46]. The interaction among these multidimensional factors does influence knowledge on the legality of abortion and the decision-making process on the safety of abortion methods [18].

It is clear from the literature that the relationship between knowledge on legality of abortion under some conditions and abortion is mediated by factors at the micro and macro levels. However, the literature has been silent on how changes in micro- and macrolevel factors might affect the relationship between knowledge of abortion legality and the safety of abortion methods. This is the gap in the literature that

this study seeks to fill by examining how the changes in these factors affect legality knowledge of the abortion and abortion decision-making nexus.

## Methods

### Study design and setting

The study used data from the 2007 and 2017 Ghana Maternal Health Surveys (GMHSs). The 2007 and 2017 GMHSs were spearheaded by the Ghana Statistical Service (GSS) with technical support from the Inner-City Fund (ICF) Macro International through the Demographic and Health Survey (DHS) Program, funded by the United States Agency for International Development (USAID), Government of Ghana (GOG), the European Union (EU) and the United Nations Population Fund (UNFPA). The sampling frame adopted was from the 2000 and 2010 Ghana Population and Housing Censuses (PHCs). The GMHSs used a multistage stratified cluster sampling method to select the eligible enumeration areas and households. Further details of the survey methodological and sampling procedures and questionnaires used can be accessed in the final report [47,48].

### Study participants

Women of reproductive age 15-49 years who were permanently resident in selected households a night before the survey were eligible to be interviewed.

The study made use of the women's data file and for the two rounds of GHMS conducted in 2007 and 2017. This study, however, limits the analysis to a subpopulation of women who terminated a pregnancy between 2002 and 2007 and 2012 and 2017 due to the dependent variable of interest (abortion safety).

### Variables and measurement

#### Outcome variable

The outcome variable is abortion safety. It was categorised in a binary form as "0" for "safe" and "1" for unsafe from the variable 'type of method, provider and place of abortion'. The 'safe' abortion methods came from medical methods such as misoprostol (Cytotec tablets), mifepristone, dilation and curettage (D&C), dilation and evacuation (D&E), vacuum aspiration, saline installation, catheter and other medical injections. In terms of safe provider, it was defined as seeking abortion services from a medical doctor, nurse/midwife; these are legally certified health professionals mandated to provide these services. The use of a 'safe' place for abortion was defined as seeking abortion services from a government/private hospital/health centre because of the requisite support equipment, and hygiene is likely to be present in these facilities. Any woman who responded in the affirmative to all three measures (safe methods, provider and place) in terminating her pregnancy was classified as having used a safe abortion method. However, if she used only one or two of these measures (using D&C, performed by a doctor but in an unapproved setting) is considered 'unsafe'. The 'unsafe' method, on the other hand, was operationally defined as the termination of pregnancy using nonmedically certified methods. These

methods include drinking milk/coffee, drinking herbal concoction, drinking other home remedies, use of herbal enema, inserting herb/object into the vagina, excessive physical activity, taking of unknown tablets and heavy massage. Unsafe providers in this context include pharmacists/chemical sellers, traditional birth attendants, relatives/friends and community health workers. With respect to unsafe place of abortion, we classified them as women receiving induced abortion services at the respondent's own home, home of traditional birth attendants, friend/relative's home or pharmacy. Any woman who affirmed having used any of these methods, providers or place to terminate pregnancy was classified as having used an unsafe abortion method.

### **Main predictor variable**

The main explanatory variable used was knowledge of the legality of abortion. In the survey, women who had ever had an induced abortion were asked if they thought induced abortion is legal in Ghana. Those who answered affirmatively were further asked under what circumstances it is legal. Therefore, the proportion who stated they know induced abortion is legal in Ghana comprises those who have heard of abortion and rightly stated the circumstances under which induced abortion can be performed.

### **Other predictor variables**

The other explanatory variables are age (15-29, 30-39, 40-49), religious affiliation (catholic, protestant, muslim, Pentecostal/charismatic, no religion), educational level (no education, primary, secondary/higher), ecological zones (coastal zone, middle belt, northern zone), place of residence (urban, rural), ethnicity (Akan, Ga/Dangme, Ewe, Mole-Dagbani), marital status (married, cohabiting, not married), parity (0, 1-2, 3+) and partner's attitude towards abortion (favoured, opposed, neutral). With the measurement of the partner's attitude towards abortion, women were asked about their partners' reaction when they (women) told their partners (men) about their decision to abort the pregnancy.

### **Sample size**

A total weighted sample of 2,432 (552 in 2007 and 1,880 in 2017) women whose activities related to their most recent induced abortion were selected.

### **Statistical methods**

The analytical strategy comprises both descriptive (frequencies) and inferential (chi-square & binary logistic) statistical analyses. Thus, the association between the predictor variables and the outcome variables was examined in bivariate (chi square) and multivariate logistic regression analysts. In the analysis, the odds ratios with 95% confidence intervals were calculated, and statistical significance was set at a p value of <0.05. All analyses were performed using SPSS Version 25.

## **Results**

### **Descriptive data**

Table 1 shows the background characteristics of women who induced abortion and the prevalence of women's knowledge of the legality of abortion and abortion methods. It shows that in the two surveys, the majority (2007:93.8%; 2017:89.3%) of women in Ghana do not know that abortion is legal under some conditions relative to those who have some knowledge. However, there has been an increase in the proportion of women who know about the legality of abortion under some conditions in Ghana from 6.2% in 2007 to 10.7% in 2017.

Regarding the safety of abortion methods, the proportion using safe methods increased by a nine percent margin from 2007 (65.6%) to 2017 (74.6%). On the other hand, the proportion of women who used unsafe methods decreased from 34.4% in 2007 to 25.4% in 2017.

Concerning respondents' background characteristics, Table 1 indicates that in the two surveys, a relatively higher proportion of women practicing induced abortion was within the age group 15-29 years: 68.8% in 2007 and 66.1% in 2017 compared to other age categories. With respect to religious affiliation, the highest proportion of women who aborted their pregnancies was Pentecostal/Charismatic (41.2%), while the lowest proportion was women who had no religious affiliations (3.4%) in 2007. Indeed, a decade later, the practice of abortion was still high among women who belonged to the Pentecostal/Charismatic faith (55.5%). Women with a secondary or higher level of education constituted the highest proportion of those who had ever had an abortion in the two surveys (68.6%: 2007; 75.5%: 2017). With regard to ethnicity, the results clearly show a high rate of abortion among Akan women compared to the other ethnic groups in 2007 and 2017.

Concerning marital status, the result shows a higher proportion of single women (42.9%) aborting their pregnancies in 2007. This proportion, however, decreased marginally in 2017 to 40.5 percent. The proportion of women in cohabiting relationships who had an abortion increased from 16.2 percent in 2007 to 36.3 percent in 2017. Among married women, the proportion decreased from 40.9 percent in 2007 to 23.3 percent in 2017. In terms of parity, the prevalence of abortion was higher among women who had no children (45.3%) than among women with one to two children (43.1%) and three or more children (11.6%) in 2007. The observation looks different in 2017, where a higher proportion of women who had abortion were those with one to two children (45.8%) compared to those who had none (28.4%) and three or more children (25.8%).

In terms of the ecological zones respondents' dwell, the result vividly shows that the practice of abortion was high among women who dwell in the middle belt zone (52.4%) relative in 2007, but in 2017, the rate of abortion was highest among women who reside in the coastal zones. It was observed that the practice of induced abortions was more common among women in urban areas in 2007 and 2017.

In addition, the rate of induced abortion was high among women whose partners were in favour of the abortion in the two survey years compared to partners who opposed it, were neutral and did not know about the pregnancy. For instance, 59 percent of women whose partners showed a favourable attitude towards abortion underwent an abortion in 2007, but this proportion was reduced to 52.8 percent in 2017.

Again, 18.5 percent of male partners opposed their women having an abortion in 2007; however, this proportion was marginally reduced to 17.9 percent in 2017.

## **Association between women's knowledge of abortion legality, background characteristics and abortion safety**

**Table 2** shows association between women's knowledge of abortion legality and abortion safety and their background characteristics. The practice of unsafe abortion was higher among women who had no knowledge of the legality of abortion under some circumstances in 2007 and 2017 and women within the age group 15-29 years in 2007. Regarding educational level and abortion methods, the results show that unsafe abortion practices were more common among women with a primary level in 2007 and 2017 than among those with no education and secondary/higher education. With ethnicity, women who belong to the Ewe ethnic group recorded a high rate of unsafe abortion only in 2007 but was not significant in 2017. The practice of unsafe abortions was most common among women who were cohabiting and dwelling in rural areas in 2007 and 2017. In 2007 and 2017, the prevalence of unsafe induced abortion was high among women whose partners had no knowledge about their pregnancies compared to partners who were either opposed to it, favoured it or were indifferent about the decision to abort.

### **Main results**

#### **Predictors of Abortion Safety**

**Table 3** presents the results of the binary logistic regression analyses of the likelihood of women practicing safe or unsafe abortion in Ghana, taking into consideration their knowledge of the legality of abortion under some conditions as well as their background characteristics. From the results, women who knew the legal status of abortion in Ghana (OR=1.85, 95% CI: 1.21-2.82 in 2017) were more likely to practice unsafe abortion. With regard to the socio-demographic and economic predictors, women who were 30-39 years old (OR=0.27, 95% CI: 0.11-0.68 in 2007), women with secondary and higher education (OR=0.40, 95% CI: 0.19-0.48 in 2007) (OR=0.44, 95% CI=0.30-0.64 in 2017), married women (OR=0.70, 95% CI=0.51-0.97 in 2017) and women residing in urban areas were all less likely to have unsafe abortion. The analysis further indicated a lower probability of unsafe abortion practices among women whose male partners agreed for their pregnancy to be aborted in 2007 and 2017. In 2017, the likelihood of unsafe abortion practices was lower among women whose male partners were opposed to abortion.

In sum, between 2007 and 2017, women's knowledge of the legal status of abortion, age, education, marital status, parity and place of residence were all significant predictors of safety abortion practices among women in Ghana.

## **Discussion**

### **Summary of main findings**



This study was designed to examine the factors predicting abortion safety among women in Ghana comparing the 2007 and 2017 Ghana Maternal Health Surveys. The findings illustrate that there has been a decrease in the proportion of women practicing unsafe abortion from 34.4% in 2007 to 25.4% in 2017. This means that there has been a nine percent reduction in the prevalence of unsafe abortion practices among women in Ghana in the past decade. Regardless of this reduction, the 25 percent women still practicing unsafe abortion is a cause for concern. Again, women's knowledge of the legality of abortion, although generally low, has improved over the past decade. Women's knowledge of abortion legality, their educational level, marital status, place of residence, ecological zones of residence and their partner's attitudes towards abortion were significant in predicting unsafe abortion practices among women in Ghana over the past ten years.

### **Synthesis with earlier studies**

Women's knowledge of the legality of abortion in Ghana is still generally poor, as found in this study. This shows the weakening impact that knowledge of the legal status of abortion and society's moral, ethical and value judgement have had on the advocacy of safe abortion practices. This implication was evident in the findings of this study, which show the higher likelihood of unsafe abortion practices among women who have knowledge of the legal status of abortion in Ghana. Similar findings of a high rate of unsafe abortion practices were found by other recent studies in Ghana [20,25], Ethiopia [49] and Nepal [50].

In terms of the demographic and socioeconomic influencers of unsafe abortion, the findings showed that middle-aged women (30-39 years) relative to older women were less likely to practice unsafe abortion. This finding is similar to findings of earlier studies from Ghana [40] and other countries [50-55]. The possible explanation for this occurrence is that middle-aged women tend to practice more risky sexual behaviours and are likely to be victims of coerced sexual intercourse and rape, which can lead to unintended pregnancies [12,24] and a lack of financial resources to take care of the pregnancy [54]. Therefore, the decision to go for abortion and the method to use coupled with the absence of financial, emotional and social support compel these young women to practice unsafe conditions that are easily accessible and relatively cheaper.

With regard to education, the findings of the study showed that women with secondary/higher education were significantly less likely to have unsafe abortion than women with no education in 2007 and 2017. This outcome supports the findings of other studies in Ghana [6, 20] and Bangladesh [56]. The plausible explanation for this is the greater access to knowledge and financial resources, which enable them to have access to safer abortion methods and be well informed of the consequences of unsafe abortion methods.

In terms of marital status and the choice of abortion methods, the results show that married women are significantly less likely to use unsafe methods during abortion than women who are cohabiting and unmarried. This finding is in concordance with the findings of other studies [33,57]. It is strongly believed that married women who are in stable unions are likely to receive financial, social and psychological support from their partners and will have easy access to safe abortion services. A study in Nepal found

that unmarried women often face different barriers to receiving safe abortion services relative to their married counterparts [33]. The findings of this study further revealed that women in urban areas were less likely to engage in unsafe abortion practices than their rural counterparts in 2007 and 2017. Similar results were found by earlier studies in Ghana [20,25] and Mozambique [35]. A possible explanation for this is the lack of access to safe abortion services among women in rural areas. This compels them to resort to the use of unsafe methods of abortion. Furthermore, the conservative cultural belief system and perception about abortion often compels rural women to secretly practice abortion, which is often unsafe.

Knowledge and awareness of the law governing abortion practice can influence women with unplanned pregnancies to have access to safe abortion services [25,51,58]. In this study, respondents' knowledge within the decade (2007-2017) of the legal status of abortion in Ghana has increased, but this has not been reflected in the reduction in the number of women who use unsafe abortion methods, as the proportion who engage in safe abortion practices has rather decreased. A study by Coast et al. [16] provided some explanation for this phenomenon. They argue that women's knowledge of the legal status of abortion may be negatively influenced by the wider social norms, cultural belief system, religious regulations and conventions surrounding abortion, which might coerced them to go for unsafe methods of abortion that usually do not occur in a public space. Furthermore, women's knowledge of the legality of abortion might prevent them from seeking safer abortion services because of financial support, especially from partners, since safe methods are relatively expensive to unsafe abortion practices [52,53]. Additionally, studies have found that knowledge of the legal status of abortion is low among some health professionals [54], which negatively influences service provider attitudes towards privacy and stigmatising provider behaviours [55]. Women will prefer to practice unsafe abortions to avoid being victims of stigmatization, labelling and emotional trauma.

There are some limitations to this study that must be recognised. First and foremost, not all factors that are associated with the choice of abortion methods have been explored. Furthermore, this study used secondary cross-sectional data, which limited us from asking further questions to obtain a deeper understanding of the phenomena. Finally, the use of cross-sectional data involved a recall of past events over a five-year period. This means that there are possibilities of recall bias and underreporting of abortion-related activities. Nonetheless, we use nationally representative data and robust statistical methods and analyses to examine the subject matter under investigation. It can therefore be generalised to women in Ghana.

### **Strengths and limitations of the study**

The main strength of this study is the use of nationally representative data to examine the influence of women's knowledge on abortion legality under some conditions and other associated factors on unsafe abortion practices among women in Ghana in the past decade. This finding therefore can be generalised to all women of reproductive age in Ghana. Regardless of this outlined strength, this was a cross-sectional study, and it will be difficult to deduce any causal interpretation between the two surveys.

Finally, because the study used secondary data, it could not account for other factors at the community and national levels that might have influenced abortion safety among women of reproductive age.

## Conclusion

Abortion is a sensitive issue in the African region because of the legal, cultural, social and moral connotations that surround it and has implications for the fertility, morbidity and mortality trends in the African region. In this study, there were no significant differences in the predictors of abortion safety among women in Ghana between 2007 and 2017. The increasing knowledge of legal status on abortion among women interestingly corresponds with an increase in unsafe abortion practices in Ghana. It is recommended that social norms, cultural beliefs and misconceptions that inhibit women's access to safe abortion services should be relaxed to enable them to have easy access to these services in the African region. This is because if a woman knows the abortion laws of Ghana prohibiting abortion unless under specific circumstances (rape, incest, mother/foetus health at risk), but the social, cultural and religious norms do not support abortion, she might practice the unsafe method that is mostly done secretly. The liberalisation of social, cultural and religious regulations, especially in rural areas, might help women with unplanned pregnancy opt for safer abortion care.

## Abbreviations

AOR: adjusted odds ratio; CI: confidence interval; DHS: demographic and health survey; ERC: ethics review committee; EU: European Union; GMHS: Ghana Maternal Health Survey; GOG: Government of Ghana; GSS: Ghana Statistical Service; GHS: Ghana Health Service; ICF: Inner City Fund; IRB: Institutional Review Board; PHC: Population and Housing Censuses; USAID: United States Agency for International Development; UNFPA: United Nations Population Fund

## Declarations

### Acknowledgements

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**Conflict of interest:** None declared

**Author Contributions:** DK conceptualised and designed the study and analysed and interpreted the data. DK drafted the entire manuscript and approved the final version of the article.

### *Ethics*

The Inner City Fund (ICF) Institutional Review Board (IRB) and the Ethical Review Committee (ERC) of the Ghana Health Service (GHS) approved the protocol for the 2007 and 2017 GMHSs. Informed consent was

obtained from the respondents before interviews were conducted. Again, all methods used were carried out in accordance with relevant guidelines and procedures.

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**Data Availability/sharing statement:** All data relevant to the study uploaded as supplementary information. Data are however openly available and can be accessed via <https://dhsprogram.com/>

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## Tables

*Table 1: Background characteristics and women's knowledge of abortion safety in Ghana, 2007 and 2017*



<i>Variable</i>	<i>2007 Total n=522</i>	<i>2017 Total n=1880</i>
<b>Knowledge on Legality of Abortion</b>	<b>n (%)</b>	<b>n (%)</b>
Yes	34 (6.2)	200 (10.7)
No	518 (93.8)	1680 (89.3)
<b>Abortion Methods</b>		
Safe Methods	362 (65.6)	1402 (74.6)
Unsafe Methods	190 (34.4)	478 (25.4)
<b>Current Age</b>		
15-29	385 (68.8)	1242 (66.1)
30-39	135 (24.5)	521 (27.7)
40-49	37 (6.7)	117 (6.2)
<b>Religious Affiliation</b>		
Catholic	57 (10.4)	163 (8.7)
Protestant	219 (39.7)	498 (26.5)
Moslem	29 (5.3)	127 (6.8)
Pentecostal/Charismatic	228 (41.2)	1044 (55.5)
No religion	19 (3.4)	48 (2.5)
<b>Educational Level</b>		
No Education	42 (7.7)	162 (8.6)
Primary	131(23.8)	298 (15.9)
Secondary+	379 (68.6)	1420 (75.5)
<b>Ethnicity</b>		
Akan	337 (61.0)	1133 (60.3)
Ga/Dangme	67 (12.0)	171 (9.1)
Ewe	96 (17.4)	335 (17.8)
Mole-Dagbani	53 (9.5)	242 (12.9)
<b>Marital Status</b>		
Married	226 (40.9)	438 (23.3)
Cohabiting	89 (16.2)	682 (36.3)

Not Married	237 (42.9)	761 (40.5)
<b>Parity</b>		
0	250 (45.3)	534 (28.4)
1-2	238 (43.1)	861 (45.8)
3+	64 (11.6)	458 (25.8)
<b>Ecological Zones</b>		
Coastal Zone	251 (45.4)	1032 (54.9)
Middle Belt	290 (52.4)	795 (42.3)
Northern Zone	13 (2.2)	53 (2.8)
<b>Place of residence</b>		
Urban	330 (59.8)	1230 (65.4)
Rural	222 (40.2)	650 (34.6)
<b>Partners' attitude toward Abortion</b>		
Favored	326 (59.0)	992 (52.8)
Opposed	102 (18.5)	337 (17.9)
Neutral	24 (4.4)	160 (8.5)
Didn't know about pregnancy	100 (18.1)	391 (20.8)

*Source: Computed from Ghana Maternal Health Surveys (GMHS) 2007 & 2017*

***Table 2: Association between women's knowledge of abortion legality, background characteristics and abortion safety***

<i>Variables</i>	<i>Abortion Safety</i>					
	<i>2007</i>			<i>2017</i>		
<b><i>Women's Knowledge on Abortion Legality</i></b>	Safe (%)	Unsafe (%)	P value	Safe (%)	Unsafe (%)	P value
Yes	80.0	20.0	0.065	85.6	14.4	0.000**
No	64.7	35.5		73.3	26.7	
<b><i>Age</i></b>						
15-29	62.9	37.1	0.015*	75.0	25.0	0.821
30-39	75.6	24.4		73.7	26.3	
40-49	56.8	43.2		73.7	26.3	
<b><i>Religious Affiliation</i></b>						
Catholics	63.8	36.2	0.410	73.0	27.0	0.600
Protestants	64.4	35.6		73.9	26.1	
Moslem	60.0	40.0		80.5	19.5	
Pentecostal/Charismatic	69.3	30.7		74.4	25.6	
No religion	50.0	50.0		72.9	27.1	
<b><i>Educational Level</i></b>						
No Education	41.9	56.8	0.000**	61.1	38.9	0.000**
Primary	56.1	43.9		67.8	32.2	
Secondary+	71.5	28.5		77.5	22.5	
<b><i>Ethnicity</i></b>						
Akan	69.3	30.7	0.012*	74.0	26.0	0.473
Ga/Dangme	68.7	31.3		73.1	26.9	
Ewe	51.5	48.5		77.9	22.1	
Mole-Dagbani	63.5	36.5		73.6	26.4	
<b><i>Marital Status</i></b>						
Married	67.7	32.3	0.389	80.6	19.4	0.000**
Cohabiting	59.6	40.4		69.4	30.6	
Not Married	65.8	34.2		75.8	24.2	
<b><i>Parity</i></b>						

0	70.0	30.0	0.102	77.9	22.1	0.096
1-2	63.0	37.0		72.7	27.3	
3+	57.8	42.2		74.2	25.8	
<b><i>Ecological Zone</i></b>						
Coastal Zone	64.9	35.1	0.158	75.8	24.2	0.426
Middle Belt	65.2	34.8		73.1	26.9	
Northern Zone	91.7	8.3		73.6	26.4	
<b><i>Place of Residence</i></b>						
Urban	76.1	23.9	0.000**	77.8	22.2	0.000**
Rural	50.0	50.0		68.5	31.5	
<b>Partners' attitude toward Abortion</b>						
Favored	69.9	30.1	0.007**	77.6	22.4	0.001**
Opposed	65.7	34.3		76.0	24.0	
Neutral	66.7	33.3		68.8	31.3	
Didn't know about pregnancy	51.0	49.0		68.0	32.0	

Source: Computed from Ghana Maternal Health Surveys (GMHS) 2007 & 2017

**Table 3: Binary logistic regression of the predictors of abortion safety among women in Ghana**

<i>Independent Variables</i>	<i>2007</i>		<i>2017</i>	
	<i>OR</i>	<i>(95%CI)</i>	<i>OR</i>	<i>(95%CI)</i>
<b><i>Women's Knowledge on Abortion Legality</i></b>				
Yes	1.60	(0.61-4.16)	1.85***	(1.21-2.82)
No	<i>Ref</i>		<i>Ref</i>	
<b><i>Age</i></b>				
15-29	0.82	(0.33-2.02)	0.91	(0.55-1.49)
30-39	0.27**	(0.11-0.68)	1.03	(0.64-1.67)
40-49	<i>Ref</i>		<i>Ref</i>	
<b><i>Religious Affiliation</i></b>				
Catholic	0.79	(0.24-2.54)	1.24	(0.58-2.66)
Protestants	0.96	((0.33-2.78)	1.24	(0.61-2.52)
Moslem	2.39	(0.51-11.24)	0.71	(0.30-1.64)
Pentecostal/Charismatic	0.77	(0.27-2.25)	1.19	(0.60-2.38)
No religion	<i>Ref</i>		<i>Ref</i>	
<b><i>Educational Level</i></b>				
No Education	<i>Ref</i>		<i>Ref</i>	
Primary	0.50	((0.23-1.10)	0.69	(0.45-1.05)
Secondary+	0.40*	(0.19-0.84)	0.44***	(0.30-0.64)
<b><i>Ethnicity</i></b>				
Akan	0.95	(0.41-2.23)	0.89	(0.59-1.34)
Ga/Dangme	0.68	((0.25-1.81)	0.97	(0.57-1.66)
Ewe	1.84	(0.73-4.67)	0.66	(0.41-1.05)
Mole-Dagbani	<i>Ref</i>		<i>Ref</i>	
<b><i>Marital Status</i></b>				
Married	0.80	(0.49-1.31)	0.70*	(0.51-0.97)
Cohabiting	0.91	(0.51-1.61)	1.21	(0.94-1.57)
Not Married	<i>Ref</i>		<i>Ref</i>	
<b><i>Parity</i></b>				

0	<i>Ref</i>		<i>Ref</i>	
1-2	1.34	(0.84-2.14)	1.17	(0.88-1.56)
3+	2.14	(0.97-4.73)	0.91	(0.62-1.34)
<b><i>Ecological Zone</i></b>				
Coastal Zone	<i>Ref</i>		<i>Ref</i>	
Middle Belt	0.92	(0.59-1.42)	1.06	(0.84-1.34)
Northern Zone	0.10*	(0.01-0.98)	0.99	(0.48-2.06)
<b><i>Place of Residence</i></b>				
Urban	0.29***	(0.19-0.44)	0.68***	(0.54-0.85)
Rural	<i>Ref</i>		<i>Ref</i>	
<b>Partners' attitude toward Abortion</b>				
Favored	0.38***	(0.23-0.65)	0.62***	(0.47-0.81)
Opposed	0.57	(0.30-1.09)	0.67*	(0.48-0.95)
Neutral	0.50	(0.18-1.41)	0.92	(0.61-1.39)
Didn't know about pregnancy	<i>Ref</i>		<i>Ref</i>	

Source: Computed from Ghana Maternal Health Surveys (GMHS) 2007 & 2017

\*P<0.05, \*\*P<0.01, \*\*\*P<0.001; AOR=Adjusted Odds Ratio