SOCIO-DEMOGRAPHIC FACTORS AFFECTING ABORTION RATE IN GHANA

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Abstract

The present study used the 2014 Ghana Health and Demographic Survey data to examine the effects of selected social and demographic factors associated with abortion rate in the country. The binary logistic regression analysis showed that abortion rate is high in Ghana with over one-fifth (21%) of the women reporting to have terminated pregnancy. After adjusting for each variables in the multivariate logistic regression analysis, we found that women between the ages of 35-39 were more likely to have abortions compared to women between the ages of 15-19 years. Women with secondary education were more likely to terminate pregnancy compared to women with no formal education, while women residing in rural areas were less likely to terminate pregnancy compared to their urban counterparts. Ever married women were more likely than never married women to terminate a pregnancy, while women wealthy women were more likely to terminate pregnancy compared to their less wealthy counterparts. The findings from the study support actions to improve access to safe abortion for all subgroups of women that are most vulnerable.

Introduction

In the quest to better understand the fertility of populations and to address fertility-related behaviours, stakeholders such as demographers, health practitioners and policy-makers are increasingly exploring the role of contraceptive use, particularly amongst the female population. Understanding the contraception and family planning needs of women provide useful information in predicting the prospects of several public health issues, particularly those related to fertility and sexual behaviours. Numerous research has established a clear link between unmet contraception and family planning needs and unintended pregnancy, as the non-use, inconsistent or incorrect use of effective contraceptives significantly contributes to the rate of unintended, unwanted or mistimed pregnancies (Denberu et al., 2017; Santelli et al., 2003, Singh et al., 2017). Globally, between 2010 and 2014, it is estimated that about 99 million incidences of unintended pregnancy occurred each year (Singh et al., 2017). Given its unexpected nature, a substantial number of these unwanted, unplanned or mistimed pregnancies typically end up being terminated (Denberu et al., 2017; Singh et al., 2017). Thus, a significant number of induced abortions occur in response to unintended pregnancies.

The termination or expulsion of an unintended pregnancy, i.e. induced abortion, is a common gynaecological experience across the world (Appiah-Agyekum, 2014; Singh et al., 2017). Globally, over the period 2010-2014, an estimated 56 million induced abortions occurred every year, that is an annual rate of 35 induced abortions per 1,000 women aged 15-44 (Ganatra et al., 2017; Singh et al., 2017). Regional incidence data suggest that developing countries in Africa, Asia and Latin America account for the majority, about 49.3 million, of this total annual global abortion rate (Singh et al., 2017). The practice of abortion in of itself is not necessarily wrong; despite negative cultural, religious and social assertions to the contrary. In fact, it forms part of women's reproductive rights in deciding what happens to their bodies.

However, the condition in which these abortions take place raises concerns. It is estimated that 45 per cent, roughly 25 million, of all the abortions that occurred between 2010 and 2014 worldwide are classified unsafe abortions (WHO, 2018). Almost all the global unsafe abortion incidences, about 97 per cent, took place in developing countries (Ganatra et al., 2017, Grimes et al., 2006). Africa alone accounts for 29 per cent of all unsafe abortions (WHO, 2018). Thus, a great number of the abortions that occur each year are performed by untrained persons and/or in an environment that does not conform to minimal medical standards, and predominantly in African countries (WHO, 2018).

The provision of abortions by untrained persons or in unhygienic settings presents many public health challenges, the most prevalent being abortion-related morbidity and mortality (Grimes et al., 2006). It is estimated that 220 women die for every 100 000 unsafe abortions performed in developing countries (WHO, 2018). In sub-Saharan Africa, the number rises to about 520 deaths per 100 000 unsafe abortions. Thus, women in Africa are disproportionately affected by unsafe abortion-related deaths. Aside from the obvious risk of dying from complications, unsafe abortion practices pose substantial financial burdens on public health systems. Current forecasts of the annual cost of providing post-abortion care in all developing countries are around 232 million US dollars (Singh et al., 2017).

Although abortion incidence varies by countries, global and regional trends provide a good source in predicting country-level incidences, where reliable national data may be unavailable or incomplete. In the Ghanaian context, the relationship between abortion and maternal deaths has been well-established. Abortion complications have been found to be among the leading contributors to maternal deaths among Ghanaian women (Sedgh, 2010; Sundaram et al., 2012). According to the 2007 Ghana Maternal Health Survey data, 7 per cent of all pregnancies end in termination deaths (GSS, GHS & Macro International, 2009). Furthermore, unsafe induced abortion is the second largest

cause of maternal death amongst Ghanaian women aged 15-49, as abortion-related deaths account for 11 per cent of all maternal deaths (GSS, GHS & Macro International, 2009).

This rate of abortion and abortion-related deaths, albeit sparse and underreported, is troubling given the fact that Ghana has a relatively liberal abortion policy (Aniteye & Mayhew, 2013; Rominski & Lori, 2014). It poses a conundrum for policy-makers, who have introduced diverse interventions in the attempt to reduce maternal morbidity and mortality as well as improve access to reproduction health for all women. This then calls for more information on whether certain groups of women are more likely than others to have an abortion. Thus, there is a need to explore sociodemographic factors to identify the subgroups of women overrepresented among women who decide to obtain an abortion using a national. In this respect, sociodemographic variables such as age, level of education, marital status, income, religion, ethnicity and place of residence will be explored based on their known associations with reproductive outcomes in other contexts.

Literature review

The age of a woman has been found to be linked to her motivation to avoid an unplanned birth and consequently obtain an abortion (Appiah-Agyekum, 2014; Denberu et al., 2017; Frederico et al., 2018). Globally, it has been found that women in their twenties, particularly those between 20 and 24 years, account for much of abortion incidences (Singh et al., 2017). This has been supported by research in different parts of the world where induced abortion has been found to be more common among young adults aged 20-34 years (Chae et al., 2017; Geelhoed et al., 2002; Oye-Adeniran et al., 2004). However, there have been some observed variations in the relationship between age and induced abortion. Some studies have found higher abortion rates among older (≥ 34 years) women (Mote et al., 2010; Santos et al., 2016); whilst others have reported higher prevalence of abortion among younger (< 20 years) women (Adjei et al., 2015; Bonnen et al., 2014; Ibrahim & Onwudiegwu, 2012; Lema et al., 1996; Tesfaye et al., 2014).

Research has identified the level of education as the strongest predictor of abortion. A number of studies have consistently found a positive link between the level of education or educational attainment and induced abortion. Most evidence suggest that abortions are more frequent or higher among educated women or girls still attending compared to their non-educated counterparts (Ahiadeke, 2001; Bonnen et al., 2014; Chae et al., 2017; Geelhoed et al., 2002; Mote et al., 2010; Oye-Adeniran et al., 2004; Pallikadavath & Stones, 2006). Thus, the higher the level of education of the women, the more likely they are to have an abortion.

Closely linked to educational attainment is employment status or occupation. It is widely accepted that education contributes to access in the labour market. Therefore, like education,

employment status has been found to have a significant influence on whether women have an abortion. Thus, employed women of reproductive age, including self-employed women, are more likely to seek an abortion than their counterparts who are unemployed (Ahiadeke, 2001; Klutsey & Ankomah, 2014, Mote et al., 2010).

In the abortion discourse, marital status has also been found to be strongly associated with induced abortion. Generally, studies show that single women (i.e. never married, divorced and widowed) are more likely to have an abortion compared to their married counterparts (Adjei et al., 2015; Bonnen et al., 2014; Denberu et al., 2017; Klutsey & Ankomah, 2014; Mote et al., 2010; Oye-Adeniran et al., 2004; Schwandt et al., 2011). However, another study conducted in Ghana by Ahiadeke (2001) found the inverse to be true, where married women were more likely to seek induced abortion.

Moreover, place of residence (urban or rural) has been found to be associated with induced abortions. By and large, women living in urban or peri-urban areas are more likely than rural residents to obtain an abortion (Ahiadeke, 2001; Chae et al., 2017; Geelhoed et al., 2002; Mote et al., 2010; Pallikadavath & Stones, 2006, Sundaram et al., 2012). Higher abortion rates in urban areas could be attributed to the fact that desired family size tends to decline rapidly in urban areas (Chae et al., 2017).

In general, access to financial resources has been associated with a greater ability to obtain an abortion. Thus, women of higher socioeconomic status, i.e. wealthier women, are more likely to opt to terminate their unintended pregnancies compared to poorer women (Adjei et al., 2015; Chae et al., 2017; Pallikadavath & Stones, 2006; Sundaram et al., 2012). However, Schwandt et al. (2010) found an inverse relationship where the odds of abortion was higher among poorer Ghanaian women.

The influence of religion on induced abortion is unclear owing to differential reports in the literature. Some studies have found abortions to be more frequent among women who professed to be Christians (mostly Catholic or Protestant) compared to Muslims or other religions (Ahiadeke, 2001; Santos et al., 2016; Sundaram et al., 2012). Other studies conducted in Ghana found that women who seek induced abortion are more likely to report no religious affiliation (Klutsey & Ankomah, 2014; Schwandt et al., 2010).

Data and Methods

The data source for this study was drawn from 2014 Ghana Demographic and Health Surveys (GDHS) from the individual files of women of reproductive ages of 15 to 49 years old. The data contained data of 9396 individuals and 11835 households.

The outcome variable for this study is abortion which was measured in GDHS by having ever terminated a pregnancy while the explanatory variable of interest are of age, educational, wealth

index, marital status, religious affiliation, place of residence, and employment. The descriptive analysis involved the use of percentages and frequencies. A bivariate using chi-square was used to explain the relationship between abortion and each explanatory variable used in the study. The bivariate chi-square test is appropriate for this study because the variables were categorical in nature. The assumptions of chi square test are that the sample size must be large enough and cannot be used for correlated data.

The formula is written as: $x^2 = \sum \frac{(o-e)^2}{e}$.

Where o = observed values

e = expected values

∑ = sum

In stage three, a multivariate binary logistic regression was used to analyse the association of selected socio-demographic factors and abortion among women 15-49 years. Logistic regression model is a technique for describing the association between a dependent variable which is dichotomous using values 0 or 1 (i.e. failure or success) and a set of explanatory variables. Logistic regression model is expressed as:

Log (p/1-p) = a + ∑ βiXi + e

Where p = the event of occurrence (outcome variable)

X = the explanatory variables

β = the size of the coefficient of explanatory variable

e = the base of natural logarithms

All data were weighted and analysed using Stata 15 version. Results were interpreted by using odds ratio with level of significance set at $p<0.05$ and confidence intervals of 95%.

Results

Background characteristics

Table 1 presents the selected socio-demographic of the sample. The table shows that majority (18.7%) of the women were between the ages of 15-19 years and women between the ages of 44-49 years were the lowest (9.3%) of the age groups of the women. With respect to education, most (51.7%)

of the women had attained secondary education while 5.5% had attained higher education. Considering place of residence, 49% of women in Ghana resides in rural areas whereas 51% lives in urban areas.

Table 1 also shows that majority (72%) of women are working while 28% are not. In respect of marital status, most (67.6%) of the women are married while 32.4% are never married. With regards to household wealth index, 43.6% are poor while 20.2% of women are in the middle wealth index and account for the lowest. The highest (62%) of women belong to other Christians denomination, followed by Muslim (18.4), and Catholic (14.3%).

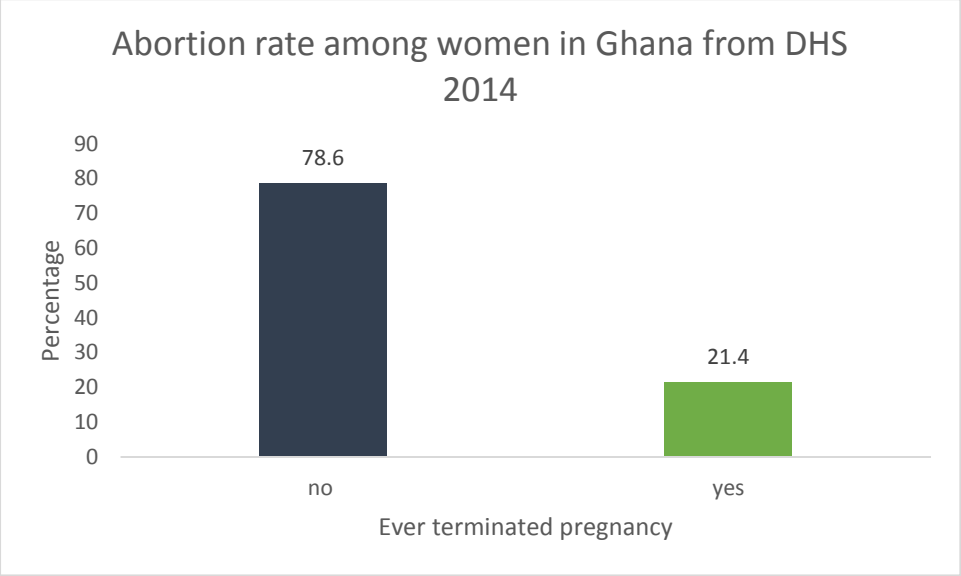
Table 1: Percentage distribution of sociodemographic characteristics of women between the ages of 15-49 years from Ghana DHS 2014

Variables	Frequency (N)	Percentage
Age		
15-19	1756	18.7
20-24	1571	16.7
25-29	1564	16.7
30-34	1343	14.3
35-39	1260	13.4
40-44	1032	11.0
45-49	870	9.3
Education		
No education	2281	24.3
Primary	1747	18.6
Secondary	4854	51.7
Higher	514	5.5
Place of residence		
Urban	4602	49.0
Rural	4794	51.0
Wealth index		
Poor	4094	43.6
Middle	1902	20.2
Rich	3400	36.2
Marital status		
Never married	3041	32.4
Ever married	6355	67.6
Employment status		
Not working	2626	28.0
Working	6761	72.0
Religion		
No religion	273	2.9
Catholic	1341	14.3

Other Christian	5828	62.0
Muslim	1726	18.4
Traditional	227	2.4

Abortion rate among women in Ghana 2014

Figure 1 shows that 21.3% of women reported to have had abortion.



Prevalence of abortion according to the socio-demographics factors of women

The results in Table 2 presents the bivariate Chi-square analysis of abortion and the selected socio-demographic variables used in the study. Results show that women in the age group 35-39 years had the highest (31.2%) prevalence of abortion while women in the age group of 15-19 years had the lowest (2.6%). Considering education, table 2 shows that women with primary education had the most (22.3%) prevalence of while women with no formal education had the lowest (19.6%) abortion rate. However, the result was not statistically significant. With regards to place of residence, women residing in urban areas have a prevalence of 24.7% abortion rate compare to the 18.2% of women living in rural areas.

Table 2 also shows that the rate of abortion is highest (23.7%) for women in the middle wealth index abortion is lowest (15.8%) for women who are in the poor wealth index. Regarding marital status, the rate of abortion is 26.8% among married women compared to 9.9% among the never married women. Women who reported to be working have the most (25.3%) of abortion rate compared to 11.4% among women who are not working. With respect to religion affiliation, the prevalence of abortion was highest (23.8%) among women belonging to other religion affiliation, followed by women with no religion affiliation with 23%, while women belonging to Muslim affiliation have the lowest (17%) of abortion rate.

Table 2: Bivariate result showing Chi-square analysis of abortion by socio-demographic variables of women

	Yes (%)	**P value**
Variable		
Age		
15-19	2.6	0.000
20-24	16.4	
25-29	23.4	
30-34	30.2	
35-39	31.2	
40-44	26.7	
45-49	30.3	
Education		
No education	19.6	0.136
Primary	22.3	
Secondary	21.8	
Higher	21.6	
Place of residence		
Urban	24.7	0.000
Rural	18.2	
Wealth index		
Poor	15.8	0.000
Middle	23.7	
Rich	21.4	
Marital status		
Never married	9.9	0.000
Ever married	26.8	
Employment status		
Not working	11.4	0.000

Working	25.3	
Religion		
No religion	23.0	0.000
Catholic	16.5	
Other Christian	23.8	
Muslim	17.0	
Traditional	21.4	

Multivariate Analysis

Table 3 presents the unadjusted and adjusted estimates for the association between abortion and socio-demographic variables of women. The unadjusted binary logistic regression results under Model 1 in table 3 shows a consistent association between abortion and age groups of women. From the table, women between the ages of 15-19 years have a low risk of abortion compared to any other age groups. For instance, women between the ages of 35-39 years were 15.55 times more likely to do abortion compared to women between the ages of 15-19 years. After controlling for all the variables used in the study, the magnitude of the association decreased and the likelihood of doing an abortion among women aged 35-39 years become 10.35 times compared to women between the ages of 15-19 years.

With regards to education in the unadjusted analysis, abortion was found to be significant associated with women who had primary education only. The result showed that women who had primary education are 1.23 times more likely to do an abortion compared to women without any formal education. After controlling for other variables in the study, the magnitude of the association changed and all categories of women education becomes significant. The results shows that having women who had attained primary and secondary education are 1.21 and 1.05 times likely to terminate pregnancy compared to women without formal education. However, women who had attained higher education have lower risk of terminating pregnancy compared to their counterpart without any formal education.

Table 3 shows that abortion is statistically significant with place of residence in both the unadjusted and the adjusted analysis. The result shows that women living in rural have lower (OR: 0.66, CI: 0.60-0.73) risk of terminating pregnancy compared to women living in urban areas. After

controlling for other variables used in the study the result shows that women residing in rural areas are 0.79 times to terminate pregnancy compared to women residing in urban areas.

Considering wealth index of women, Table 3 shows that being in the poor wealth index reduces the likelihood of abortion. The result shows that women in the middle and rich wealth index are 1.64 and 1.80 more likely to terminate pregnancy compared to women in the poor wealth index. But after controlling for other socio-demographic variables, the result shows that women in the middle and rich index are 1.42 and 1.46 times more likely to terminate pregnancy compared to women in the poor wealth index.

Table 3 shows that abortion is strongly associated with employment status of women. The result showed that women working are 2.57 and 1.34 times more likely to terminate pregnancy in the unadjusted and adjusted analysis respectively compared to women not working. With regards to religion affiliation, our result from Table 3 shows that Catholic and Muslim religion are the only significant categories in religion affiliation. After adjusted for the rest socio-demographic variables in the analysis, all the categories of religion affiliation were insignificant except the category Muslim. The result shows that women Catholic and Muslim religion affiliations are 0.68 and 0.64 respectively less likely to do abortion compared to women with no religion affiliation. However, in the adjusted analysis model, women who belong to Muslim religion affiliation are 0.71 times less likely to do abortion compared to women without religion affiliation.

Odds ratio (and 95% confidence intervals) from logistic regression analysis identifying associations between socio-demographic variables and abortion as reported by women age 15-49 in Ghana 2014

	Model 1		**Model 2**	
	Odds ratio	(95% CI)	Odds Ratio	(95% CI)
Variable				
Age				
15-19	1		1	
20-24	6.90	5.11-9.32*	5.75	4.22-7.84*
25-29	11.36	8.46-15.25*	8.27	5.99-11.41*
30-34	15.12	11.24-20.31*	10.19	7.32-14.19*
35-39	15.55	11.56-20.92*	10.35	7.40-14.48*
40-44	13.49	9.96-18.27*	8.92	6.32-12.59*
45-49	14.99	10.95-20.28*	10.18	7.18-14.43*
Education				
No education	1		1	
Primary	1.23	1.05-1.43*	1.43	1.21-1.69*
Secondary	1.11	0.98-1.27	1.23	1.05-1.43*
Higher	1	0.76-1.19	0.75	0.58-0.97*
Place of residence				
Urban	1		1	
Rural	0.66	0.60-0.73*	0.79	0.69-0.90*
Wealth index				
Poor	1		1	
Middle	1.64	1.43-1.87*	1.42	1.22-1.66*

Rich	1.80	1.61-2.01*	1.46	1.23-1.72*
Marital status				
Never married	1		1	
Ever married	3.20	2.84-3.61*	1.38	1.18-1.61*
Employment status				
Not working	1		1	
Working	2.57	2.27-2.92*	1.34	1.17-1.55*
Religion				
No religion	1		1	
Catholic	0.68	0.50-0.94*	0.73	0.53-1.02
Other Christian	0.96	0.72-1.27	0.92	0.68-1.24
Muslim	0.64	0.47-0.87*	0.71	0.52-0.98*
Traditional	0.74	0.48-1.15	0.85	0.54-1.34
Prob> F	0.000		0.000	

Discussion and conclusion

This study contributes to existing literatures that investigates the sexual and reproductive health of women. The drastic rise in abortion especially in Ghana society in particular with 21.4% abortion rate is often driven by unwanted pregnancy. Hence, this study seek to shed light on the socio-demographic characteristics of women that seek abortion the most in Ghana. Results from our study revealed that age, education, place of residence, wealth index, marital status, employment status and religion were all associated with abortion.

The result from our analysis show that the higher the age of women the higher the likelihood of abortion. Although the result of this study revealed that women between the ages of 30-34 and 35-39 years have the highest rate of abortion compared to any other age. This is consistent with a study in Ghana by Mote and colleague in 2010 and a study in Brazil by Santos et al. (2016) which found that women above 30 years have the highest abortion rate. A possible explanation could be that women above the age of 30 years may decide to terminate pregnancy after they have achieved their desire family size.

With regards to education, our result revealed that education is statistically significant to termination of pregnancy among women in Ghana. The result from the analysis show that women who are educated are more likely to have an abortion done compared to women with no education. This result conform with previous studies in Ghana Mote et al. (2010), Sundaram et al. (2012) and Adjei et al. (2015) which also found that women with primary, secondary and tertiary education are more like to terminate pregnancy compared to women with no education. Variations notwithstanding, the overrepresentation of educated women among women who have abortions is

unsurprising because well-educated women are better situated to have access to reproductive information and knowledge of abortion policies and services available to them.

As revealed from our analysis, place of residence is found to be significantly associated with abortion. The result from our analysis indicates that women from rural areas are less likely to terminate pregnancy compare to women in urban areas. A possible explanation could be that the higher abortion rates in the urban areas are attributed to the means of access to better financial resources and better health care. Our finding is in line with previous studies on abortion in Ghana by Sundaram et al. (2012), another study in India by Pallikadavath & Stones (2006), and a study conducted in low and middle income countries by Chae et al. (2017)

Contrary to the findings of a previous studies on abortion in Ghana by Mote et al, (2010) and Klutsey & Ankomah (2014), our study shows that women who are ever married are more likely to terminate pregnancy compared to women who are never married. However, our finding conforms with the study on induced abortion in Ghana by Ahiadeke (2001) which reported that married women are more likely to seek abortion compared to unmarried women. Reason for this could be that married women have attained their desired family size and may opt for abortion in case of unwanted pregnancy.

Regarding wealth index and employment status of women, our analysis using GDHS 2014 indicates that women who are working, in the middle and higher wealth index are more likely to terminate pregnancy compared to women in the poor wealth index. A possible explanation for this could be that women who are not working and in the poor wealth index do not have the financial capability and resources to obtain an abortion. Our findings is consistent with the findings of Adjei et al. (2015), Chae et al. (2017), and Sundaram et al. (2012) who all reported that women that are working or have higher financial resources are more likely to terminate an unwanted pregnancies compared to women that are not working or poor.

Although there have been inconsistent findings regarding the association between religion and abortion (Ahiadeke, 2001; Klutsey & Ankomah, 2014; Schwandt et al., 2010), our findings reveal that women who are catholic and Muslims are more likely to terminate pregnancy compared to women with no religion. This finding is in corroboration with previous studies in Ghana and Brazil by Sundaram et al. (2012) and Santos et al. (2016) respectively who reported that abortion is common among the Catholics compared to other religion.

Some limitations should be considered when interpreting the results of this study. First, because of the illegality of induced abortion in Ghana, some respondents might not accurately provide information related to abortion due to its legal implications. Second, social desirability might also leads

to inaccurate or no response. Lastly, recall bias may occur as a result of the data relying on self-reported information. However, despite these limitations, this study has important strengths. This study used a nationally representative dataset, data were restricted to 5 years preceding the survey in order to minimize recall bias and lastly the findings from this study is useful for policy implications.

In conclusion, our study demonstrates that age, education, place of residence, wealth index, marital status, employment, and religion were all significantly associated with abortion in Ghana. Ghanaian women who are between the ages of 30-34 and 35-39, have secondary and higher education, living in urban areas, ever married, belonging to middle and rich wealth index, working and having a catholic and Muslim religion affiliation are more likely to opt for abortion.

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