Abortion Seeking Behavior among Ghanaian Women: An Analysis of the 2007 Ghana Maternal Health Survey

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Introduction:

Unsafe abortion is the second biggest contributor to maternal mortality in Ghana, a country where maternal mortality itself is the second leading cause of women's mortality as a whole (GHS et al. 2009)[1]. Compared to an average of 290 maternal deaths per 100,000 live births in 2008 in the developing world as a whole, Ghana's maternal mortality ratio (MMR) was estimated at 350 maternal deaths per 100,000 live births (WHO 2010).[2] Findings from the Ghana Maternal Health Survey (GHS et al. 2009) show that about 11% of the maternal deaths in Ghana were due to unsafe abortion[3]. Hospital based small scale studies report higher proportions of abortion related deaths among all maternal deaths occurring in the hospital setting (Lassey and Wilson 1998; Mills et al. 2005; Baiden et al. 2006) reinforcing the importance of the impact of unsafe abortion.

Currently, there are no reliable national level estimates of the incidence of unsafe abortion in Ghana. A study by Ahiadeke (2001) in southern Ghana in the late 1990s, put the abortion rate (both safe and unsafe) in the Southern regions of Central, Eastern, Volta, and Greater Accra, at about 17 per 1000 women of reproductive age in 1997-98. The 2007 Ghana maternal health survey (GHS et al. 2009) puts the overall national abortion rate (both safe and unsafe) slightly lower at about 15 per 1000 women of reproductive ages (15-44). While these are likely to be underestimates, given the methodologies used, they provide a minimum estimate of abortion incidence in Ghana. The GMHS also found that about 13% of women who had an abortion reported having one or more health problems after their most recent abortion including severe pain, bleeding, fever and foul smelling discharge, and perforation or other injury, all of which indicate an unsafe abortion (GHS et al. 2009). From the levels of mortality and morbidity that are reported to have occurred from recent abortions, we can only infer that many of the abortions performed in Ghana are unsafe.

[1] The Ghana Medical Association says it is the single biggest contributor to maternal mortality in Ghana (Baird 2000).
[2] The Ghana Maternal Health Survey (GHS et al. 2009) puts this number even higher at 580 maternal deaths per 100,000 live births.
[3] The Ghana government's own research estimates that about 22%-30% of maternal mortality in Ghana is due to complications from unsafe abortion (Ghana Ministry of Health 2005).

The high levels of abortion-related morbidity and mortality are likely to have serious negative economic and social consequences for Ghanaian society as a whole as well as for women. At the macro level, if large numbers of women present with post-abortion complications at health facilities, it will put severe stress on Ghana's fragile health infrastructure, and also stretch the limited finances of an already resource poor country. At the household level too, treating complications from unsafe abortion puts a heavy stress on the household's finances. Aboagye et al. (2007) estimate that the total direct cost burden on families for treating incomplete abortions is over $8.5 million annually. If women die from these complications, or if they suffer any long term disability because of them, it can potentially devastate them and their families, especially their children if they have any (Adanu et al. 2005; Brookman-Ammisah 2004; Biritwum 2006; Baird 2000).

Unlike many other countries in sub-Saharan Africa, where the heavy legal restrictions on abortion are correlated with lack of abortion safety, Ghana's abortion law is not really a part of the problem, since it is fairly liberal. The 1985 law states that an abortion performed by a qualified medical practitioner is legal if the pregnancy is the result of rape, incest or "defilement of a female idiot"; if continuation of the pregnancy would risk the life of the woman or threaten her physical or mental health; or if there is a substantial risk the child would suffer from a serious physical abnormality or disease (Morhee and Morhee, 2006). Although the law is fairly liberal, it is largely unknown among the general population. A study done at a teaching hospital in Ghana among post-abortion care patients found that a staggering 92% of the women were unaware of the legal status of abortion (Konney 2009). Instead, people seem to be guided in their abortion seeking behavior by various other factors.

One such factor seems to be the acceptability of abortions in Ghana. Since abortion is heavily stigmatized in Ghana,[4] many studies indicate that this often forces women to seek an unsafe, clandestine abortion, even when safe options are available, because women want to avoid being seen or identified in a health facility (Adanu et al. 2005, Baiden et al. 2006). Areas where stigma is particularly strong, like rural areas, often end up with the biggest share of the maternal mortality and morbidity burden due to complications from unsafe abortion (Baiden et al. 2006).

Rural areas also have poorer access to health care facilities, which means that rural women are not only at greater risk of not having access to safe abortion facilities, but also of not getting prompt treatment for post-abortion complications. Since a large proportion of Ghanaian women live in rural areas, many Ghanaian women have poor access to good health care (Baird 2000). Poverty only exacerbates the situation. In the Ghanaian health system, patients are required to pay a deposit to the health facility upon admission, and they are also required to pay for the drugs, for medical supplies, the costs of surgical interventions, and food and lodging (Borghi et

[4] A study by Henry and Fayorsey (2002) found that in the various languages spoken in Ghana, the word for abortion meant murder or spilling blood, while the word for miscarriage meant a natural process.

al. 2003). As a result out-of-pocket costs to women and their families, in the event that they need health care, are high, and this could be a deterrent to seeking proper care.

Previous studies also indicate that religion may be a factor in Ghanaian women's reproductive behavior and in their seeking maternal health care (Gyimah et al. 2006, Ngom et al. 2003). Even after controlling for socioeconomic variables, Christian women were found to be more likely to use modern medical care for maternal health related issues, while women of other persuasions, like traditionalists and Muslims, were less likely to do so. Gyimah et al. (2006) argue that it is likely that the norms and values of some religious groups discourage the use of modern medicine including for maternal health care. This would indicate that the incidence of unsafe abortion is higher among some religious groups compared to others.

Many women also take multiple steps to end their pregnancy. As per the GHS et al. (2009) report, about one in ten women took multiple steps to end their pregnancy, because the first step was not effective. Taking milk or coffee with lots of sugar was cited as the first step for terminating a pregnancy by about 27% of the women. An equal proportion also cited taking tablets as their first step. About 45% of these women went to a relative or friend to get an abortion, while a quarter went to a chemical seller (GHS et al. 2009). Since so many women don't go to a doctor as a first step to end the pregnancy, it is not surprising that Ghana has a high incidence of unsafe abortion.

Despite the poor understanding of abortion law, and the negative consequences of unsafe abortion, prior studies show that abortion is widely sought by all religious, ethnic, and socioeconomic groupings of Ghana (Aboagye et al. 2007). According to the GHS et al. 2009 report, better educated, wealthier women, and women in urban areas are more likely to obtain an abortion, as are older women and Christian women. A study of adolescents in southern Ghana by Agyei et al. (2000) showed that 47% of sexually experienced adolescent girls in their sample of 829 girls had obtained an abortion, while a smaller study by Glover et al. (2003) of about 700 youth, where half the respondents were female, found that about 70% of the sexually experienced girls had either had or had attempted to have an abortion. Studies have also found that repeat abortions are fairly common. A study of a hospital in Ghana (Adanu et al. 2005) found that about 37% of the women in their sample, who presented with post-abortion complications from induced abortions, had had a previous induced abortion, and about 32% of those who had presented for spontaneous complications in the same hospital, had had a previous induced abortion.

Often women seek an abortion because of relationship problems with their partners (Adanu et al. 2003; GHS et al. 2009). This includes situations where men terminate their relationship with women upon finding out about the pregnancy, or cut off financial support to them. The GHS 2009 report says that the most common reason for seeking an abortion among the women in their sample was not having the financial means to take care of the child, which was cited by 21% of the women in their sample.

In a small study of adolescent girls in southern Ghana, Henry and Fayorsey (2002) found that most times, the girls' partners were active decision makers on whether to continue the pregnancy or not. If they decided to terminate the pregnancy, the partners often supplied women with the money for an abortion. However, if the partner denied any responsibility for the pregnancy, the women or their families had to shoulder the burden of paying for the abortion. Similar results have also been reported for other countries such as Nigeria (Bankole et al. 2008). However, it's not just the never-married women who are likely to face difficulties in obtaining a safe abortion; previous research indicates that married women could also face serious constraints in seeking health care since they are economically dependent on their husbands, and because reproductive decision-making rests largely with their husbands (DeRose and Ezeh 2005, DeRose et al. 2002; Ngom et al. 2003).

In the studies by GHS et al. (2009) and Adanu et al. (2003) many women cited the need to delay childbearing, in order to continue schooling or working, as a reason for seeking an abortion. Seeking recourse to abortion to space or limit childbearing is also suggested by evidence from various studies, which show that while Ghana has experienced fairly marked fertility decline over time[5], this seems to have come about less due to an expansion in contraceptive use, and more due to wide-spread recourse to both safe and unsafe abortion (Aboagye et al. 2007; Geelhoed et al. 2003; Baiden et al. 2006). This conclusion is supported by data from the most recent DHS, which puts the figure on the unmet need for contraception at 35% for married women (GSS et al. 2009), and at 20% for sexually active unmarried women (our calculations), despite the decline in the wanted TFR from 4.2 to 3.5 between 1993 and 2008. A moderately high level of premarital sexual activity, combined with stigma against single motherhood, is likely related to abortion: about 25% of adolescent women had ever been sexually active and were never married, and the gap between the median age at first intercourse and first marriage is substantial at 2.4 years (GSS et al. 2009). These factors indicate that the likelihood of unintended pregnancy is high and that resort to abortion may also be prevalent.

Much of what we know about abortions in Ghana is obtained by piecing together evidence from various small scale studies, such as hospital studies, or various qualitative studies. There is currently no systematic, quantitative analysis, which is national in scope, on the factors that determine the differences between subgroups of women who resort to abortion; and on the factors that determine which subgroups of women will obtain a safe procedure. A national level, quantitative analysis, would help assess the strength of association of each factor, relative to others, with subgroups of women who are likely to obtain an abortion, and those among them who are likely to obtain a safe abortion. This paper seeks to fill that research gap. It is based on the premise that the women who are most likely to seek an abortion, and those who resort to an unsafe abortion are not randomly distributed across the different social groups in the country. Instead, there are likely to be important social and economic factors that determine abortion seeking behavior and access to safe abortion.

[5] In 1988, Ghana's TFR was 6.4. In 1998 it had declined to 4.4, and then to 4.0 in 2008 (GSS et al. 2009)

Our hypothesis is that women who have various social and economic advantages will be more likely to seek an abortion; however it is women who already live under heavy social and economic disadvantages, who will resort to unsafe abortion. We base this hypothesis on a conceptual framework provided by Benson (2005) which states that the ability to access safe abortion methods requires that women are aware of their options, have positive attitudes towards seeking safe care, and are empowered enough to be able to use these options. Based on the findings from previous research, it is more likely that women with social and economic advantages will have the knowledge and feel empowered enough to both obtain an abortion, and moreover obtain a safe abortion.

Our analysis compares the characteristics of women who had abortions with those of women who did not; and among women who had abortions we explore the characteristics that are associated with obtaining a safe abortion. Through the findings of this paper we hope to provide concrete national level information on the factors associated with unsafe abortion, which we hope will lead to more effective policies and programs for improving women's reproductive health and rights.

Data and methods:

The research uses the 2007 GMHS data that was administered by ICF Macro in collaboration with the Ghana Statistical Services and was intended to serve as a source of baseline information for the Reducing Maternal Morbidity and Mortality (R3M) program initiated in 2006 in three regions in Ghana (Greater Accra, Ashanti, and Eastern). The data are a cross-sectional, nationally representative sample survey that used a multi-stage, stratified, clustered sample design. The survey was administered in two phases, where the first phase was used to identify deaths to women ages 12-49. The second phase of the data collection provides the data that are used in this analysis. In this phase, a questionnaire was administered to 10,858 households and 10,370 women ages 15-49. The individual (woman) file has 905 variables, while the household file has 276 variables.

Importantly for our paper, the individual (woman) level data in the GMHS includes two components that are critical to the analysis. There is an abortion module which was fielded to those women who had an abortion in the five years preceding the survey (since 2002). The N for this module is 564 women. There is also a pregnancy history section (N = 10,370) that has details of all the pregnancies a woman had in her lifetime, including the outcome of these pregnancies. In the pregnancy history section, a total of 7,528 women reported to have ever been pregnant, and of them 1,548 women (weighted N = 1,502) have ever had an abortion in their lifetime. Since all the data are self-reported, it is likely that abortion experience is under-reported owing to the stigma associated with it. As a result, the estimates presented in this paper could be interpreted as the minimum level of association between the variables.

This paper presents results from two sets of analyses:

The first analysis identifies the sub-groups of women who are more likely to have an abortion in the five years preceding the survey. The sample is restricted to women who had a pregnancy in the five years preceding the survey, since only these women can potentially have had an abortion in that time frame. There were 5,573 women (weighted N = 5,747) who had a pregnancy in the last 5 years. Among these women, 564 women (weighted N = 557) had obtained an abortion in the five years preceding the survey.

The second set of analyses identifies the sub-groups of women who are more likely to obtain a safe abortion. In these models the sample is restricted to women who had an abortion in the five years prior to the survey. If any woman had more than one abortion in this time frame, we only took the information for the last abortion. The decision to use the last abortion was based on the fact that we had to use data at the time of the survey for some of our explanatory variables. Given that the status of some of the variables could change over time, there is a greater likelihood that the information which is current at the time of the survey, is true for the last abortion (in the chosen time frame), compared to the first. We used measures defined for the time of the abortion whenever available. The N for this analysis sample is 564, which after adjusting for missing values on the independent variables is 553. The main dependent variable for this analysis - abortion safety - is available in the abortion module of the survey, and is described in greater detail in the next section.

Dependent variables:

Abortion in the last 5 years yes/no: In the first set of analyses, we have a binary dependent variable to measure *who* had an abortion in the 5 years prior to the survey. These analyses are restricted to women who had a pregnancy in the last 5 years, and compares abortion outcomes to non-abortion outcomes. If a woman obtained an abortion in the last 5 years, the variable was coded as 1; for all other outcomes it was coded as 0.

Abortion safety: The dependent variable for the second set of analyses is abortion safety. We constructed this variable taking into account three dimensions: whether the respondent used a safe provider, a safe method, and a safe location for the abortion. Use of a safe provider was defined as obtaining the abortion from a doctor or a nurse-midwife – the two types of health providers who are allowed by law to provide an abortion, then. All other providers (auxiliary nurse-midwife, chemical seller or pharmacist, traditional birth attendant, community health worker, friend or relative, or traditional healer), were coded as unsafe providers.

Use of a safe location was defined as obtaining the abortion from a government or private hospital/health center or clinic. Other locations, such as a pharmacy, the respondent's own home, or the home of a relative or a friend, or the home of the traditional birth attendant, were classified as unsafe.

The safest methods for terminating a pregnancy are D&C, and MVA. Methods that were not equivalent to D&C or MVA in safety, but were nevertheless fairly safe were saline instillation, and taking Cytotec. Methods that were not effective but not necessarily unsafe were considered to be mild. These include drinking milk or coffee, taking home remedies, an herbal concoction, or an herbal enema. Everything else such as inserting objects in the vagina, taking tablets, getting a heavy massage, getting an injection, taking oxytocins, inserting a catheter, and taking heavy physical exercise were considered as unsafe. We then created a binary measure for method safety, where the safest methods and the fairly safe methods were combined into one category called 'safe', while the mild and the unsafe methods were combined into another category called 'unsafe'.

Using these three variables, we created a single binary measure for abortion safety. If a woman had used a safe provider, a safe location, and a safe method to terminate her pregnancy, or if she had at least used a safe provider and a safe method, we coded the abortion as safe. All other abortions were coded as unsafe. According to this classification, about 54% of the women in our analysis sample had received a safe abortion, while about 46% of the women had received an unsafe abortion.

Independent variables:

Our choice of explanatory variables is guided by the findings from previous research. Based on what we already know, we identified four different groups of variables as important. The first group of variables includes the demographic characteristics of women. The second set of variables includes women's socioeconomic characteristics such as their education level, their economic status, and whether they live in a rural or urban area. The third set of variables deals with the involvement of the partner in the decision to terminate a pregnancy, and the fourth set of variables includes measures of access to services and information in regard to obtaining a safe abortion. Below we describe the construction of these variables:

Demographic variables:

Respondent's age: In the first analysis we measured age using the respondent's age at the time of the survey. For the second analysis, we used the respondent's age at the time of the abortion. This variable was coded into three age categories – under 20, between 20-29, and 30 and above.

Respondent's parity: For the first analysis, we measured the respondent's parity by computing the number of living children at the time of the survey. For the second analysis, we computed the number of living children at the time of the abortion. The variable was coded into 3 categories – no children, 1-2 children, 3 or more children.

Was pregnancy pre-marital or not: We included a variable to measure whether the pregnancy was pre-marital or not. For the full sample of women who had a pregnancy in the last 5 years, we constructed a binary variable that was coded 1 if the respondent had never been married at the

time of the survey, and 0 if she had ever been married. For the sample of women who had an abortion in the last five years, we created a similar variable which was coded as 1 if the respondent had never been married at the time of the abortion, or 0 if she had ever been married.

Previous abortion history: There were two separate measures for the two different analyses. For the sample of women who had a pregnancy since 2002, we measured if these women had had an abortion prior to 2002; while for the sample of women who had an abortion in the last 5 years we included a variable for any previous abortion before the most recent abortion.

Religion: Both analyses included the same religion variable. Since this variable is an ascribed characteristic of an individual, it is less likely change over the life of the individual. The variable was coded into 3 categories – Catholic, Protestant, and Muslims and others.

Socioeconomic characteristics:

Highest level of education: Since this variable is not available for the time of abortion, we used current level of education in both analyses. We created a binary variable: less educated, defined to include completed primary education or lower levels, and better educated, defined to include some middle school education or higher levels.

Wealth status: We used the standard wealth quintile measure (based on household characteristics) provided in the GMHS as our indicator of women's wealth status. This information was re-coded into a binary variable with women in the top two wealth quintiles coded as wealthier, and the bottom three wealth quintiles coded as poorer.

Place of residence: The variable was coded as 1 if the respondent lived in an urban area and 0 if she lived in a rural area.

Partner variables:

The partner variables were used only in the second analysis since they were asked only of those women who obtained an abortion in the last five years.

Partner's attitude towards abortion: The 2007 GMHS asks women who had an abortion in past 5 years about the attitude of their partners to the abortion. Responses were coded as favored, opposed, neutral, and didn't know. We created a binary variable where partners who favored or were neutral to the termination were included in one category, while those who were opposed or didn't know (that is they weren't told by the respondent) were included in another category. The rationale for including the partners who didn't know with those who were opposed was that it indicated reluctance on the part of the women to tell their partners about the pregnancy and the termination, which in turn indicated that they may not have welcomed the idea.

Did the partner pay for services? The dataset includes a question which asks respondent who paid for the abortion. It allows the respondent to check as many options as are applicable. We

created a binary variable from this information where if a partner paid for a part or all of the expenses for the abortion, they were coded as 1 and 0 if they didn't pay for the abortion at all.

Access to services, care, and information:

Knowledge of abortion law: The dataset has a variable that asks respondents, who said they have heard of abortions, about whether they know the abortion law in Ghana. We used this information to create a binary variable for whether the respondent knows the abortion law in Ghana. The respondents who didn't know about abortion at all were assumed to not know the law. Those who were not sure about the law were also coded as not knowing about it. About 97% of the respondents who had a pregnancy in the last 5 years did not know the abortion law in Ghana, while 3% said they did.

Knowledge of safe place to get an abortion: We created a binary variable for whether the respondent knew of a safe place, like a hospital, polyclinic, or health center, where they could get a safe abortion. We created this variable using information from other variables in the dataset such as knowledge of where to get modern family planning, esp. female methods of family planning, and where applicable where the respondent got ante-natal care or delivery care. The survey does include a variable for whether the respondent knows where to go for an abortion, however, this question was asked only of those who hadn't had an abortion in the previous 5 years, which leads to the assumption that everyone who had an abortion in the last 5 years know a safe place for an abortion. As a result, we constructed this new variable from the other information provided in the dataset.

Modern method use at the time of pregnancy: Respondents who had obtained an abortion in the five years preceding the survey were asked if they had used a method at the time of the pregnancy, and if yes, then which method. We created a binary variable, where if the respondents said they used any of the following methods: female or male sterilization, the pill, the IUD, injectables, implants, male condom, female condom, or diaphragm, they were coded 1 for using a modern method, while using traditional methods or no methods at the time of the pregnancy was coded 0 for not using a modern method.

Exposure to media: We created a 3 category variable for exposure to media, which was constructed by combining three separate questions on whether the respondent read the newspaper, watched TV, and listened to the radio. The three categories were: exposed to all three types of media, exposed to two types of media, and exposed to just one or no media. About 46% of the respondents who had a pregnancy in the last 5 years said they had little to no exposure to media, while 42% said they had been exposed to two types of media, and just 11% had been exposed to all three types of media.

The data were analyzed using logit models in SAS. Logit models are estimated using the following equation (Agresti 2002):

$$\pi(x) = \frac{\exp(\alpha + \beta x)}{1 + \exp(\alpha + \beta x)}$$

Where $\pi(x)$ = P(Y = 1|X = x) = 1 – P(Y= 0|X = x)

This gives us the relative odds of the dependent variable Y being equal to one (success), versus zero (failure), given certain parameters X = x. The estimates are in logged odds and the results are usually interpreted by taking the log-inverse of the estimates to obtain the odds ratios.

Since the 2007 Ghana MHS is a complex sample survey, the standard errors were adjusted for the complex sample design and the estimates were appropriately weighted. Design adjustments were made using Taylor Series Linearization.

Results - Obtaining an abortion

Descriptive results:

Tables 1 and 2 show the results for the subgroups of women who obtained an abortion in the five years preceding the survey among those who had a pregnancy in that time. Table 1 has the descriptive results, while table 2 shows the results from the logistic regression. According to the first table 5,747 women had a pregnancy in the five years preceding the survey, and of them 557, or about 10% of the women obtained an abortion.

----Table 1 about here----

Table 1 indicates that there is a significant association between the demographic characteristics and the likelihood of seeking an abortion. For instance adolescents, and women who were below age 30 were disproportionately represented among those who obtained an abortion (77%), compared to their proportions among those who had a pregnancy (47%). Similarly, nulliparous women, and women who had never been married, were disproportionately represented among those who obtained an abortion (43% and 40% respectively) compared to their proportions among those who had a pregnancy (6% and 9% respectively). Women of above 30, women with children, and those who had ever been married were under-represented among those who sought an abortion, compared to their proportions among those who had a pregnancy.

Compared to their proportions among those who had a pregnancy, women who had had a prior abortion experience were over-represented among those who had a recent abortion. While they made up 11% of those who had a pregnancy, women who had had a prior abortion, constituted 35% of those who sought an abortion.

Among the different religious groups Protestants are disproportionately represented among those who had an abortion compared to their proportion among those who had a pregnancy (81% in the former category compared to 60% in the latter).

All three socio-economic variables are significantly related to seeking an abortion, with the better educated, the wealthy, and the urban residents, being over-represented among those who sought an abortion (69%, 65%, and 60% respectively), compared to their proportions among those who had a pregnancy in the five years preceding the survey (46%, 40%, 36% respectively).

Variables related to the provision of services, care, and information also show an association with abortion seeking behavior, with women who know the abortion law, those who don't know a safe place for getting an abortion, and those who were exposed to two or more types of media being disproportionately represented among those who sought an abortion (6%, 17%, and 78% respectively), compared to their proportions among those who had a pregnancy (3%, 6%, and 54% respectively).

Multivariate results:

Table 2 provides a more nuanced picture of the association of each variable with the likelihood of obtaining an abortion, since it controls for all other socio-demographic variables. While many results tally with the descriptive results, there are also several differences. Some of the results indicate that being socially and economically privileged allows women greater ability to terminate a pregnancy when desired, compared to their less privileged peers.

----Table 2 about here----

Demographic variables such as age, parity, and marital status are all significantly associated with the odds of obtaining an abortion. Women who were between the ages of 20 and 30 had the best odds of obtaining an abortion compared to the youngest age or oldest age women. Compared to women 30 years or older, women aged 20-29 had 36% higher odds of obtaining an abortion.

Women with 1-2 children have the highest odds of obtaining an abortion. Compared to nulliparous women, they have almost thrice the odds of obtaining an abortion. Similarly, women who were never married had twice the odds of obtaining an abortion compared to women who had ever been married.

Other demographic variables such as prior abortion experience and religion are also associated with obtaining an abortion. Women who have had a previous abortion have more than twice the odds of terminating their pregnancy compared to those with no prior abortion experience; and Protestants have 79% higher odds of terminating their pregnancy compared Muslims and others.

Among the three socioeconomic variables, greater wealth and urban residence are significantly associated with higher odds of obtaining an abortion. Wealthier women had 72% higher odds of

obtaining an abortion compared to poorer women, while urban women had 43% higher odds of having an abortion than rural women.

Knowledge of abortion law is not significantly associated with getting an abortion, but knowing a safe place for getting an abortion is significantly negatively associated with it. Women who mentioned a safe place for getting an abortion, had 60% lower odds of obtaining an abortion compared to those who did not know of a safe place. This is similar to the results from the descriptive statistics. However, the multivariate results, unlike the descriptive results, don't show any association between exposure to mass media and getting an abortion.

Results - Obtaining a safe abortion:

Descriptive results:

Tables 3 and 4 show which sub-groups of women obtained a safe abortion. Table 3 shows the women of various socio-demographic groups, who obtained an abortion, by whether they had a safe or a less safe/unsafe abortion; whereas table 4 shows the results from the multivariate analysis. According to table 3, overall, a majority of Ghanaian women (54%) obtained a safe abortion; however a significant minority (46%) resorted to a less safe or an unsafe abortion.

----Table 3 about here----

Among the demographic variables, only age and prior abortion experience are associated with abortion safety. The result on age highlights the importance of awareness and empowerment in the ability to obtain a safe abortion: a majority of adolescent women under age 20 (57%), a rather vulnerable age group, obtained a less safe abortion compared to women of other ages, a majority of whom obtained a safe abortion.

A greater percentage of women who had obtained a prior abortion obtained a safe abortion, while equal proportions of those who had no prior abortion experience had a safe versus less safe abortion.

The results for the socioeconomic variables by abortion safety, once again show that social and economic advantages translate into advantages in other areas, in this case, the ability to obtain a safe abortion. While a majority of women with middle school and above education obtained a safe abortion (60%), a majority of women with below middle school education obtained an unsafe abortion (58%). Similarly, a majority of wealthy women obtained a safe abortion (63%), while a majority of the poorer women obtained an unsafe abortion (64%); and compared to a majority of urban women who obtained a safe abortion (62%), a majority of rural women (58%) obtained an unsafe abortion.

Interestingly, the partners seem to play an important role in whether women get a safe abortion or not. A majority of women whose partners supported their decision to terminate or who were neutral, had a safe abortion (58%), while a majority of their peers whose partners were opposed

or who were no told of the decision to terminate, obtained an unsafe abortion (53%). Further, the results show that when women's partners pay for some or all of the abortion-related expenses, then more women have a safe abortion. A majority of women whose partners paid some or all the expenses, had a safe abortion (67%), while a majority of women whose partners did not pay for the abortion (58%) had an unsafe abortion.

Among the variables that measure access to care, services, and information, only exposure to media was significantly associated with obtaining a safe abortion. More women with greater exposure to the media obtained a safe abortion (between 54% - 66%), while a majority of women who had little to no exposure to media had an unsafe abortion (59%).

Comparing the results from table 1 with those in table 3, we find that the categories of women who are more likely to obtain an abortion are the same as those who are more likely to get a safe abortion, and these women are typically socially and economically advantaged. In contrast, women who are economically and socially disadvantaged, are both less likely to have an abortion in the first place, and more likely to obtain an unsafe abortion when they do.

Multivariate results:

The results from the multivariate analysis show the relative importance of each socioeconomic and demographic variable in obtaining a safe abortion. In this analysis, we introduced each group of variables step-wise. Model 1 shows the association of the basic demographic variables with abortion safety. Respondent's age, respondent's parity, and previous abortion experience are all associated with abortion safety though in different ways. The results on age confirm the results from the descriptive analysis - that adolescents are less able to get a safe abortion. These women have 57% lower odds of getting a safe abortion compared to women who are 30 and above.

----Table 4, model 1 about here----

Unlike the descriptive tables, parity is significant in this analysis, and women with higher parity – those with 3 or more children – have 54% lower odds of obtaining a safe abortion compared to nulliparous women.

Women with a prior abortion history have 57% higher odds of obtaining a safe abortion than women with no prior abortion history.

In the next model we introduced the socioeconomic status variables. This changes the association between the dependent variables and the demographic variables a little. The results for adolescent women and those with 3 or more children remain significant and negative, indicating that they are most at risk of an unsafe abortion. However, with the introduction of the socioeconomic variables, the association between abortion safety and prior abortion history becomes non-significant. The reason for this seems to be that in our sample about 75% of the women who have had a previous abortion are also those who are better off economically,

indicating that many of the women who have had repeat abortions are also socially and economically well to do.

----Table 4, model 2 about here----

Among the socioeconomic status variables, wealth and education are both significant. While women with more education have 57% higher odds of getting a safe abortion, compared to their less educated peers; women who are wealthy have more than twice the odds of getting a safe abortion compared to poorer women.

In model 3 we introduced the partner variables. The big change from the previous model is that the results for education become non-significant. This is likely because the partners of a majority of the women with at least middle school education are more likely to have supported their decision to terminate the pregnancy, and also paid for it. Wealth however remains significant, and wealthy women continue to have more than twice the odds of getting a safe abortion compared to poorer women.

----Table 4, model 3 about here----

Partner's attitude to the abortion is not associated with obtaining a safe procedure, but if the partner pays for some or all of the abortion expenses, then a woman has nearly thrice the odds of getting a safe abortion compared to her peers whose partners didn't contribute towards the abortion expenses. Since the attitude of the partner is not significantly associated with abortion safety, it seems to indicate that it is not enough for the partner to merely say they are open to the idea of terminating the pregnancy. They need to demonstrate this support in a more concrete manner by paying for it. This indicates the need to involve partners in the decision making process.[6]

In the final model, we introduced the variables that measure access to information, care, and services. In this model the association between respondent's age, parity, and wealth and abortion safety do not change much from the previous model. For instance after controlling for the access to information variables, wealthier women still have about twice the odds of obtaining a safe abortion compared to less well-off women. Similarly, the association between whether the partner pays and abortion safety also remains largely unchanged. However, access to information, care, and services, including, interestingly, the knowledge of abortion law, is not significantly associated with abortion safety, after controlling for all other variables.

----Table 4, model 4 about here----

Discussion:

[6] In analyses not shown here, we introduced interaction terms for whether the partner paid for the abortion, with the wealth of the respondent, the age of the respondent, and the respondent's parity. None of the interaction terms were significant indicating that there is no significant variation in support from the partner by the wealth status of the respondent, or their age or parity.

The need to seek an abortion is driven by the occurrence of an unintended pregnancy, which happens when women who want to space or limit their childbearing are unsuccessful in their attempts to do so. Despite the increase in the use of modern methods among married women of reproductive ages from 10% in 1993 to 17% in 2008, the contraceptive needs of about 60% of married, and 33% of unmarried Ghanaian women, are still not being met (GSS et al. 2009). As a result of the large unmet need for contraception, there is a gap between wanted and actual fertility. While Ghanaian women want on average 3.5 children, due to the high unmet need for modern contraception, they actually have on average 4.0 children per woman (GSS et al. 2009). And though there is a wealth and education differential, with wealthier and better educated women wanting and managing to have fewer children[7], all groups have some excess fertility. The excess fertility leads women to seeking an abortion, as a means of spacing or limiting their childbearing.

However, many of these abortions are unsafe and obtained clandestinely, despite a fairly liberal abortion law; and unsafe abortions are currently the second largest cause of maternal mortality in Ghana (Sedgh 2010).

In this paper we have attempted to identify the subgroups of women who seek an abortion, and those among them, who obtain a safe abortion. To this end we examined if there were socio-demographic and economic differences between the women who obtained an abortion, and those who didn't; and between the women who obtained a safe abortion, and those who didn't. Based on previous research, we hypothesized that women who are already socially and economically in an advantageous position in society are more likely to want to control family size and therefore to obtain abortions as one means of doing so, but it is the women who are already living under serious social and economic disadvantages, who are more likely to resort to unsafe abortions.

Our analysis shows that women in their 20s have higher odds of obtaining an abortion compared to women both younger and older than them. This age group has a higher probability of becoming pregnant -- compared to adolescent women (a much lower proportion of whom is sexually active) and older women (whose probability of becoming pregnant is lower partly because they are less fecund, for biological reasons as well as because coital frequency declines with age. As a result the odds of having an unintended pregnancy would be higher for women in their 20s, compared to the others, and therefore the need to have an abortion would also be higher.

However it is older age women – women in their 20s and 30s– who are more able to get a safe abortion, compared to the adolescents. Adolescents, who have an unintended pregnancy, are less likely to have knowledge about where to get an abortion, less likely to have the confidence to ask

[7] Wealthier women want about 2 children, and manage to have about 2.3 children, compared to poorer women, who want 5.7 children, but have 6.5 (GSS et al. 2008). Women with secondary plus education want 1.8 children, and have 2.1 children, while women with no education want 5.3 children and have 6 children.

others for advice, more influenced by stigma, and have poorer access to financial resources compared to adult women. This makes them more vulnerable to having unsafe abortions.

Our results also show that women with no children or fewer children have greater odds of having an abortion compared to women with 3 or more children, indicating that women resort to abortions in order to achieve better spacing between births, and less to stop child-bearing. The results on abortion safety, however, indicate that is women with higher parity who are at greater risk of an unsafe abortion. Previous research indicates that men, rather than women, control reproductive decision-making in Ghana; and women with lower parity typically have better educated partners who have a smaller desired family size. In contrast, women with higher parity are likely to have much lower levels of reproductive autonomy, and less educated partners, whose desired family size is greater (DeRose and Ezeh 2005; DeRose et al. 2002). Such women may also therefore have poorer access to household financial resources, and be more influenced by stigma, which may force them to seek recourse to an unsafe abortion, if they ever need one.

Women who have never been married are more likely to seek an abortion, compared to ever married women. This suggests that in Ghana abortion is being used to avoid having a child before marriage, because of the stigma associated with out-of-wedlock childbearing. However marital status at the time of the pregnancy is not associated with abortion safety.

Our results also show that women who have had a prior abortion are more likely to terminate the pregnancy that occurred in the five years prior to the survey. This may be due to the fact that women who have had an abortion before are likely to know what to do, and where to go, when they have another unintended pregnancy. However, the ability of women who have had a prior abortion, to get a safe abortion, seems to be dependent on their socioeconomic status, since controlling for these variables, removed the association between prior abortion experience and abortion safety.

Among the different religious groups, Protestants have greater odds of terminating their pregnancy compared to Muslims and others, who have the lowest odds of terminating their pregnancy. Our findings are in line with earlier research which shows that Muslims have lower odds of pregnancy termination compared to Christians (Ahiadeke 2001). Other research shows that Muslims also have low modern contraceptive use, indicating higher fertility desires, which is a likely explanation for this result as well (Clements and Madise 2004). Religion is however not associated with abortion safety.

The results on socioeconomic variables support our hypothesis that women of higher social and economic standing are better able to obtain an abortion, and better able to obtain a safe abortion. Wealthy women and urban women have greater odds of terminating their pregnancy compared to women who are poor or those who live in rural areas (education however has no effect). And, wealth status is also strongly associated with having a safe abortion. While the results on education and urban residence are not significant in the final model on abortion safety, their

coefficients are positive, indicating some collinearity between the measures, and the over-riding importance of economic status in obtaining a safe abortion.

Women who mentioned knowing a safe health facility for obtaining an abortion, had lower odds of getting an abortion compared to women who could not name even one source for safe abortion services. It appears as though women, who know of a safe facility, also have greater access to contraceptive services from these facilities, which makes them more able to avoid unintended pregnancies, which in turn reduces the need to seek an abortion in the first place.

More unusually, knowledge of a safe facility is not significantly associated with abortion safety. However, this highlights the need for further research in this area, which may help us identify the confounding factors. More research is also needed to find out how knowledge of sources of different reproductive health services may overlap and how such knowledge affects where women go for an abortion. This result should also in no way deter efforts to educate women about sources of safe abortion services, which is essential.

One of the most interesting results from our analysis is the strong association between the role of the partners and women's ability to obtain a safe abortion. Our results show that a mere statement of support from the partner is not enough to enable a woman to get a safe abortion. Instead, it needs a more concrete show of support, in terms of paying for the abortion related expenses, to give women the opportunity to get a safe abortion. This result emphasizes the need for encouraging more equitable communication between partners about decision-making regarding pregnancy and unintended pregnancies; and increasing awareness among male partners of the importance of their support, and of the dangers of unsafe abortion.

Our analysis shows that in Ghana, economic and social advantages have a large influence in abortion seeking behavior. Women with social and economic advantages are more likely to want and have abortions, but it is the women who already live with other heavy disadvantages, who are most vulnerable to unsafe abortion and its consequences.

In order to reduce the incidence of unsafe abortion, and to mitigate its associated negative consequences, there is an urgent need to develop policies and programs that address the needs of economically and socially disadvantaged women. Such programs could focus on improving access to safe abortion and postabortion care services, de-stigmatizing abortion through media and public campaigns, and the education of women and the general population about the legal status of abortion.

Indirectly, these findings point strongly to abortion costs as a major barrier in preventing disadvantaged women from accessing safe abortion services. Therefore, government programs might want to ensure that legal abortion services in the public sector are affordable (if they are not already so), and publicize the affordability and availability of these services among the general population. Special attention should be paid to adolescent women, women with higher parity, and poor women, who are at the greatest risk of unsafe abortions.

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Table 1. Distribution of women who have had a pregnancy in the last 5 years and obtained an abortion in the 5 years preceding the survey by selected background characteristics, Ghana MHS 2007

Variables	Among those who had in the last 5 years: A pregnancy[1] N	% dist.	An abortion[2] N	% dist.	
Ever had an abortion since Jan 02					
Yes	557	9.7	—	—	
No	5190	90.3	—	—	
Total	5747	100.0	—	—	
Demographic variables					
Age					***
Under 20	313	5.5	147	26.3	
20-29	2380	41.4	283	50.8	
30+	3054	53.2	127	22.8	
Total	5747	100.0	557	100.0	
Parity					***
No children	338	5.9	241	43.2	
1-2 children	2443	42.5	178	32.0	
3 or more children	2966	51.6	139	24.9	
Total	5747	100.0	557	100.0	
Marital Status					***
Never married	528	9.2	219	39.3	
Ever married	5218	90.8	339	60.7	
Total	5746	100.0	557	100.0	
Prior abortion experience[3]					***
Yes	622	10.8	196	35.2	
No	5125	89.2	361	64.8	
Total	5747	100.0	557	100.0	
Religion					***
Catholic	779	13.6	58	10.4	
Protestant	3456	60.2	452	81.0	
Muslim and others	1509	26.3	48	8.6	
Total	5743	100.0	557	100.0	
Socioeconomic characteristics					
Current education level					***
Primary school and below	3115	54.2	175	31.4	
Middle school and above	2631	45.8	382	68.6	
Total	5746	100.0	557	100.0	
Current socioeconomic status					***
The poorest 3 quintiles	3490	60.7	193	34.6	
The wealthiest 2 quintiles	2257	39.3	365	65.4	
Total	5747	100.0	557	100.0	
Current urbanicity					***
Rural	3667	63.8	226	40.6	
Urban	2080	36.2	331	59.4	
Total	5747	100.0	557	100.0	
Access to services, care, information					
Current knowledge of abortion law					***
No/don't know if abortion is legal	5563	97.0	518	93.7	
Yes, abortion is legal	172	3.0	35	6.3	
Total	5736	100.0	553	100.0	
Know a place to get safe abortion					***
Yes	5409	94.1	461	82.8	
No	338	5.9	96	17.2	
Total	5747	100.0	557	100.0	
Current exposure to media					***
Little to no exposure	2652	46.4	125	22.5	
Exposed to two types of media	2418	42.3	308	55.5	
Exposed to all media	649	11.3	122	22.1	
Total	5718	100.0	555	100.0	
Total	5747	100	557	100	

Notes: All estimates are weighted. Components may not sum to totals due to rounding. Missing values were dropped using list-wise deletion. ***p<0.001, **p<0.01, *p<0.05, †p<0.1. Chi-sq. tests were used to assess significance. — Not applicable.

1. All estimates for this sample are from information that was current at the time of the survey.

2. The estimates for age, parity, marital status, and abortion experience for this sample are for the last/only abortion.

3. Prior abortion experience indicates abortions prior to 2002 for the sample of those who had a pregnancy since 2002. For those who had an abortion since 2002, it is any abortion prior to the last abortion.

Table 2. Maximum likelihood logit estimates of the odds of a woman, who had a pregnancy in the 5 years preceding the survey, obtaining an abortion on selected independent variables, Ghana MHS 2007

Explanatory variable	Model 1	
	β Estimate	Std. error
Intercept	-2.203 ***	0.199
Demographic characteristics		
Current age (30+ omitted)		
Under 20	0.021	0.130
20-29	0.310 ***	0.080
Number of living childen (No children omitted)		
1-2 children	1.075 ***	0.099
3 or more children	-0.622 ***	0.102
Current marital status (ever married omitted)		
Never married	0.747 ***	0.151
Any abortions prior to Jan 02 (no omitted)		
Yes	0.733 ***	0.150
Religion (Muslims and others omitted)		
Catholic	0.045	0.134
Protestant	0.581 ***	0.095
Socioeconomic characteristics		
Current education level		
Middle and above (primary and below omitted)	0.186	0.136
Current wealth status		
Wealthiest (poor omitted)	0.543 ***	0.167
Current urbanicity		
Urban (rural omitted)	0.355 *	0.159
Access to services, care, information		
Knowledge of abortion law		
Yes (no omitted)	0.443	0.283
Know a safe place for abortion?		
Yes (no omitted)	-0.907 ***	0.163
Access to media		
Most exposure (little to no exposure is omitted)	0.072	0.109
Some exposure	0.110	0.074
Likelihood ratio chi-sq.	743.506 ***	
N	5532	

Notes: ***p<0.001 **p<0.01 *p<0.05 †p<0.1. N = 5,532

Table 3. Distribution of women who have terminated a pregnancy in the 5 years preceding the survey by whetl they obtained a safe abortion or unsafe abortion, by selected background characteristics, Ghana MHS 2007

Characteristics	Safe Percents	Unsafe Percents	Total N	Total Percents	
Abortion safety	54.1	45.9	553	100	
Demographic characteristics					
Age @ time of abortion					**
Under 20	43.1	56.9	147	100	
20-29	56.3	43.7	279	100	
30+	62.1	37.9	127	100	
Parity @ time of abortion					
No children	54.8	45.2	238	100	
1-2 children	56.4	43.6	177	100	
3 or more children	50.0	50.0	138	100	
Marital status @ time of abortion					
Never married	54.3	45.7	333	100	
Ever married	53.8	46.2	219	100	
Any abortions prior to last/only abortion					**
Yes	62.0	38.0	192	100	
No	49.9	50.1	360	100	
Religion					
Catholic	54.1	45.9	57	100	
Protestant	54.8	45.2	447	100	
Muslim and others	47.8	52.3	48	100	
Socioeconomic characteristics					
Current education level					***
Primary school and below	41.8	58.3	174	100	
Middle school and above	59.8	40.2	379	100	
Current socioeconomic status					***
The poorest 3 quintiles	36.5	63.5	190	100	
The wealthiest 2 quintiles	63.4	36.7	362	100	
Current urbanicity					***
Rural	42.1	57.9	222	100	
Urban	62.2	37.8	330	100	
Partner variables					
Partner's attitude towards abortion					
Favored or neutral	58.3	41.7	350	100	*
Opposed or unaware	46.6	53.4	201	100	
Did partner pay for abortion services?					***
Partner did not pay	42.2	57.9	281	100	
Partner paid for some/all expenses	66.5	33.5	272	100	
Access to services, care, information					
Current knowledge of abortion law					†
No/don't know if abortion is legal	53.0	47.0	518	100	
Yes, abortion is legal	69.9	30.1	34	100	
Using a modern method at the time of pregnancy					
Yes	51.0	49.0	113	100	
No	54.9	45.1	440	100	
Know a place to get safe abortion					
Yes	53.7	46.3	456	100	
No	56.2	43.8	96	100	
Current exposure to media					***
Little to no exposure	41.1	58.9	122	100	
Exposed to two types of media	54.2	45.8	306	100	
Exposed to all media	66.0	34.0	122	100	
Total N			553	100	

Notes: All estimates are weighted. Components may not sum to totals due to rounding.

Missing values were dropped using list-wise deletion. ***p<0.001, **p<0.01, *p<0.05, †p<0.1.

Chi-sq. tests were used to assess significance.

Table 4. Maximum likelihood logit estimates of the odds of a woman obtaining a safe abortion versus obtaining an unsafe abortion, in the five years preceding the survey, on selected explanatory variables, Ghana MHS 2007

	Model 1		Model 2		Model 3		Model 4	
Explanatory variable	β Estimate	Std. error	β Estimate	Std. error	β Estimate	Std. error	β Estimate	Std. error
Intercept	-0.147	0.182	-1.061 ***	0.291	-1.445 ***	0.346	-1.318 **	0.517
Demographic characteristics								
Age @ abortion (30+ omitted)								
Under 20	-0.837 ***	0.182	-0.686 ***	0.194	-0.727 ***	0.197	-0.716 ***	0.197
20-29	-0.096	0.130	-0.074	0.137	-0.094	0.141	-0.069	0.141
Parity @ abortion (No children omitted)								
1-2 children	0.210	0.169	0.172	0.180	0.200	0.186	0.195	0.192
3 or more children	-0.781 ***	0.229	-0.574 *	0.240	-0.569 *	0.253	-0.527 *	0.250
Marital status @ abortion (ever married omitted)								
Never married	0.025	0.301	0.025	0.318	-0.004	0.336	-0.028	0.339
Any previous abortions? (no omitted)								
Yes	0.452 *	0.207	0.275	0.218	0.270	0.227	0.279	0.230
Religion (Muslims and others omitted)								
Catholic	0.046	0.241	0.108	0.244	0.188	0.256	0.184	0.260
Protestant	0.105	0.174	0.080	0.176	0.088	0.186	0.122	0.200
Socioeconomic characteristics								
Current education level								
Middle and above (primary and below omitted)			0.449 *	0.231	0.341	0.244	0.283	0.248
Current wealth status								
Wealthiest (poor omitted)			0.829 **	0.274	0.772 **	0.280	0.748 *	0.313
Current urbanicity								
Urban (rural omitted)			0.276	0.233	0.361	0.246	0.319	0.247
Partner variables								
Partner's attitude towards abortion								
Favored or neutral (opposed omitted)					-0.083	0.254	-0.092	0.260
Partner paid for some or all expenses								
Yes (No omitted)					1.064 ***	0.234	1.062 ***	0.238
Access to services, care, information								
Knowledge of abortion law								
Yes (No omitted)							0.470	0.476
Using a modern method at the time of pregnancy								
Yes (no omitted)							-0.075	0.237
Knows a safe place to get an abortion?								
Yes (No omitted)							-0.064	0.344
Access to media								
Most exposure (little to no exposure is omitted)							0.147	0.200
Some exposure							-0.043	0.157
Likelihood ratio chi-sq.	35.75 ***		70.09 ***		99.64 ***		101.93 ***	
N	553		553		553		553	

Notes: ***p<0.001 **p<0.01 *p<0.05 †p<0.1