

INCOMPLETE ABORTION IN BOSOMTWE DISTRICT, ASHANTI, GHANA

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ABSTRACT

Strategies for preventing unsafe abortion have been unyielding as a result of which many women die and develop complications from unsafe abortion including those resulting in induced abortion ending up as incomplete abortion. There is increase in incidence of death due to abortion at Bosomtwe district.

This study was an un-matched case-control study with the objective of assessing the specific differences in obstetric history and abortion experiences between incomplete abortion clients (cases) and normal delivery clients (controls) attending St. Michael's Hospital, Bosomtwe district. A comparative analysis of 61 cases and 129 controls revealed that, there was a statistical difference in both the obstetric history and abortion experiences between groups. Cases were 12.7 times more likely to have had abortion; 19.0 times more likely to have attempted to stop the index pregnancy; and 6 times more likely to have self-induced index pregnancy as a means of termination as compared to controls.

It is recommended that stakeholders, especially the district health directorate should use specific predictors for incomplete abortion among women to educate and encourage them to live a healthy reproductive life.

KEYWORDS: Incomplete Abortion, Normal Delivery, Obstetric History, Abortion Experiences

INTRODUCTION

Incomplete abortion as a results of unsafe abortion remains a major public health burden worldwide contributing to maternal deaths globally (Mellerup et al., 2015; Mutua et al., 2015; Ziraba et al., 2015) One target under the Sustainable Development Goal 3 is to reduce the global maternal mortality ratio to less than 70 per 100 000 births between 2016 to 2030, with no country having a maternal mortality rate of more than twice the global average (Who & Group, 2015). Indeed, this target is very ambitious as unsafe abortions which are one of the three major causes of maternal death globally, accounting for 47 000 deaths annually and 13% of all maternal deaths continue to be a challenge (Kalilani-Phiri et al., 2015). The global case fatality rate associated with unsafe abortion is high at 220 deaths per 100 000 unsafe abortions (Kalilani-Phiri et al., 2015).

In Africa, it is estimated that unsafe abortion accounts for the high incidence of incomplete abortions. An estimated 6.2 million unsafe abortions are performed each year in Africa, and about 5.5 million of them are in the sub-Saharan countries (PRB, 2011). In Ghana, incomplete abortion due to unsafe abortion remains a major public health problem despite the liberalization of the law on abortion almost three decades ago (Guttmacher Institute, 2010). However, many women still obtain unsafe abortions due to lack of knowledge about the law at the population and provider levels (Guttmacher Institute, 2010). Incomplete abortion due to unsafe abortion is the second largest direct cause of maternal

mortality in Ghana, second only to haemorrhage. In spite of this, data on abortion and its complications are not available in the Ghana Demographic and Health Surveys (Mote, et al., 2010). However, the Ghana Maternal Health Survey 2007 provides data on abortion from a nationwide sample of 10,370 women in their reproductive age; 15% of these women reported having had at least one abortion in their lifetime (GSS, 2009).

The Ministry of Health through its agencies including the Ghana Health Service and in collaboration with non-governmental agencies continues to address the issue relating to abortion without much success. Abortion rates in Ghana vary from site to site. A study in southern Ghana estimated 17 abortions per 1,000 women, Mote et al (2010) reported a rate of 21.3% from Hohoe in the Volta Region, while another study reported 22.6% in the Brong Ahafo Region (Geelhoed, et al., 2002). However, the district profile of Bosomtwe district from 2004 to 2006 indicate that abortion rates in district could be far higher than these figures. In the district as indicated in St Michael's Hospital which is the biggest hospital in the district, 289 cases of incomplete abortion were recorded in 2007 alone and also as one of the top ten conditions in hospital admissions between 2004 and 2009 (unpublished hospital records, 2004- 2009). The possible causes of these high cases of incomplete abortion in the district are not known. Despite several efforts in curtailing the problems associated with unsafe abortion and particularly incomplete abortion, it is suspected that majority of women still die of incomplete abortion. In spite of this horrifying revelation, no published study has been done on this sensitive issue in the district. This study therefore seeks to investigate the differences in obstetric history and abortion experiences in incomplete abortion clients and delivery clients in the Bosomtwe district in the Ashante Region of Ghana. It is expected that information on obstetric history and abortion experiences among women who deliver and those with post unsafe abortion complications will be important for reproductive health policies in the district for prevention of unwanted pregnancies. Thus, the findings of this study will help to outline specific reproductive health interventions aimed at stimulating local evidence-based solutions geared towards prevention of unwanted pregnancies, unsafe abortions and subsequently incomplete abortions.

METHODS

The study type and design was a comparative analytical study with an unmatched case-control design that assessed the differences in obstetric history and abortion experiences between cases and control.

The study population was all women in their reproductive age (15 – 49 years) who have experienced the problem of incomplete abortion and sought medical care at St. Michael's Hospital and those who were on admission for delivery. A case is defined as a woman, who is between the ages of 15-49 years, lives in Bosomtwe district and has attended St Michael's Hospital between August and October, 2008 with a diagnosis of incomplete abortion, defined by the WHO as the partial expulsion of the products of conception before 20th week of gestation. A controls is defined as a woman, who is between the ages of 15-49 years, lives in Bosomtwe district and uses St Michael's hospital between August and October, (2008) for normal delivery purposes.

Using Power and Sample (PS) software version 3.0, the sample size of 65 cases and 130 controls was estimated based on a type 1 error of 0.05, 95% confidence interval, relative risk of 2 between controls and cases and powered at 89%. This was based on a recruitment time of 3 months.

Using the sampling frame prepared out of patients who reported daily for delivery, two controls were selected without replacement for each case obtained. However, criteria for controls were considered in the selection. Primarily, all women whose code number appeared on the sampling frame and was still on admission at the time a case or cases were

reported were entered into a draw, out of which two control per case were selected. However, priority was given to controls who fell within the same age group with case(s) and who delivered on the same day as the case was reported. This was done when there were more than two of such controls so as to allow for balloting to be done in selecting the controls. Census method was used to select 61 cases during the period of the study. All women presenting with incomplete abortion each day and met the selection criteria were included in the sampling frame and automatically qualifies to be interviewed. Provided they consented to participate in the study. Ethical clearance for the study was obtained from the Kwame Nkrumah University of Science and Technology-Komfo Anokye Teaching Hospital Committee on Human Research, Publications, and Ethics (KNUST-KATH CHRPE), and administrative clearance was obtained from the Bosomtwe Health Directorate. Additional permission to undertake the study was sought from the community leaders and gatekeepers. Also permission was sought from respondents and their partners. Eligible study participants were enrolled into the study only after they had verbally consented.

RESULTS

Differences between Cases and Controls in Terms of Obstetrics History

Even though there was not a significant difference as far as number of pregnancies (chi square = 1.13; p=0.89) and incidence of still births (chi square = 0.22; p=1.00) were concerned, there was a statistically significant difference in terms of the number of children (chi square = 30.14; p=0.000), age of last child (chi square = 123.29; p=0.000), and number pregnancies lost (chi square = 36.68; p=0.000). Women with one to three children were 8.51 times (95% C.I. [3.39, 22.2] p=0.00) more likely to have had incomplete abortion than nulliparous women. Women with 4-6 children were 5.83 times (95% C.I. [1.768, 19.62]; p=0.00) more likely to have had an incomplete abortion.

Among the cases and controls 9.8%, 7.8% respectively have had 8 or more number of pregnancies. Whereas 41.0% of the cases did not have children, 7.8% of the controls also did not have children. Among those who had children, the age of the last child was 3 or more years for 44.4% and 0.8% of cases and controls respectively. About 9.8% of the cases did not have a case of lost pregnancy before the index pregnancy as compared to 49.6% of the controls. Three pregnancy losses were recorded in 4.9% and 3.1% for cases and controls respectively. Still births had not been experienced by 91.8% and 89.9% of cases and controls respectively. About 1.6% of cases and 2.3% of controls recorded three or more cases of still births as shown in Table 1.

Table 1: Obstetric History of Cases and Controls

Variable	Cases N= 61 (%)	Control N = 129 (%)	Chi Square or T-Test (P-Value)	OR [95% C.I.] (P-Value for Chi Square Trend)
Pregnancy				
Once	16 (26.2)	32 (24.8)		-
2 – 4 times	29 (47.5)	62 (48.1)	1.13	1.06 [0.40, 2.38]**
5 – 7 times	10 (16.4)	25 (19.4)	(0.89)	1.25 [0.44, 3.64]**
8 and above	6 (9.8)	10 (7.8)		0.83 [0.22, 3.33]**
Number children				
None	25 (41.0)	10 (7.8)		-
1 – 3	27 (44.3)	92 (71.3)	30.14	8.51 [3.39, 22.2]*
4 – 6	9 (14.8)	21 (16.3)	(0.00)	5.83 [1.768, 19.62]*
Above 6	0 (0.0)	6 (4.7)		
Age of last child	(n=36)	(n=119)		
< 1 year	3 (8.3)	116 (97.5)	123.29	-

1 – 2 years	17 (47.2)	2 (1.7)	(0.00)	0.00 [0.00, 0.02]*
3 and above	16 (44.4)	1 (0.8)		0.00 [0.00, 0.02]*
Pregnancy loses				
None	6 (9.8)	64 (49.6)		-
One	19 (31.1)	35 (27.1)	36.68	0.17 [0.05, 0.51]*
Two	30 (49.2)	23 (17.8)	(0.00)	0.07 [0.02, 0.20]*
Three	3 (4.9)	4 (3.1)		0.13 [0.02, 1.10]*
Four and above	3 (4.9)	3 (2.3)		0.13 [0.02, 1.10]*
Still births				
None	56 (91.8)	116 (89.9)	0.22	(p = 0.68)
One	3 (4.9)	7 (5.4)	(1.00)	
Two	1 (1.6)	3 (2.3)		
Three and above	1 (1.6)	3 (2.3)		

Source: field data, 2008

Abortion Experiences of Cases and Controls

Over half (57%) of the respondents had ever had abortion while the rest, 43%, had never had abortion as shown in figure 1.

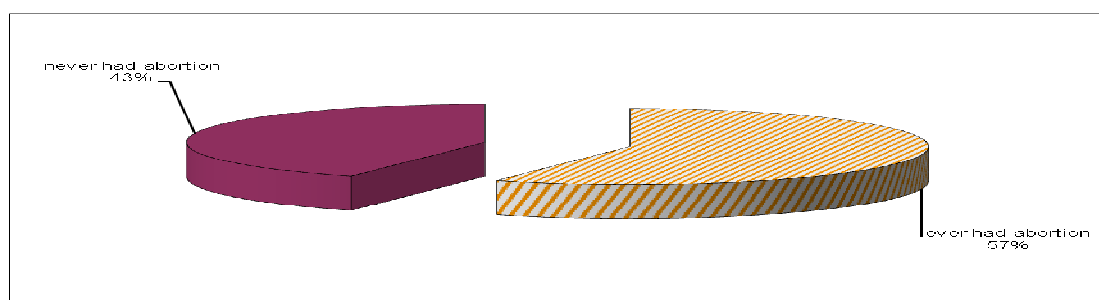


Figure 1: Experience of Abortion among Respondents (N=190)

Source: field data, 2008

Table 2 reflects the abortion experiences of cases and controls. The cases, 90.2% and controls, 41.9% had previous incidence of abortion. The incidence of previous abortion was statistically significant ($p=0.00$) between the groups. The odd of abortion among the cases was 12.7 times more than that in the controls. There was no difference ($p=0.59$) in the types of abortion experienced by both groups. Over eighty percent (81.8%) of the cases and 77.8% of the controls had experienced an induced abortion. The methods used for induced abortion for cases and controls respectively included: taking of pharmaceutical drugs 51.1% and 50.0%, done at the hospital 15.6% and 38.1%; and inserted medicines 17.8% and 7.1%.

Table 2 Abortion Experience of Cases and Controls

Variable	Cases N= 61 (%)	Control N = 129 (%)	Chi Square or T-Test (P-Value)	OR [95% C.I.]
Ever had abortion				
Yes	55 (90.2)	54 (41.9)	39.51	12.7
No	6 (9.8)	75 (58.1)	(0.00)	[5.1, 31.7]
Type of abortion	(n=55)	(n=54)		
Spontaneous	10 (18.2)	12 (22.2)	0.27	0.77
Induced	45 (81.8)	42 (77.8)	(0.59)	[0.3, 1.9]
If induced, method used				
Used enema	1 (2.2)	1 (2.4)	11.01	
Took in toxic solution	1 (2.2)	1 (2.4)	(0.35)	

Teas and herbal remedies	5 (11.5)	0 (0.0)		
Pharmaceutical drugs	23 (51.1)	21 (50.0)		
Inserted medicines	8 (17.8)	3 (7.1)		
Done at hospital	7 (15.6)	16 (38.1)		

Source: field data, 2008

Adjusting for the age among the women, ever had abortion ($R^2 = 0.18$; F-test = 42.08; $p = 0.00$) and method used for induced abortion ($R^2 = 0.48$; F-test = 4.28 and $p = 0.04$) accounted for the incidence of incomplete abortion among the women.

Table 3 Regression of Abortion Experience on Incidence of Incomplete Abortion (Adjusted for Age of Respondent)

Variable	R ²	F-Test	P-Value
Ever had abortion	0.18	42.08	0.00
Type of abortion	0.01	1.20	0.27
Method used of induced abortion	0.48	4.28	0.04

Source: field data, 2008

DISCUSSIONS

Obstetric History of Patients

The number of pregnancies, number of children, age of first child and the number of pregnancy loses including those through abortion could influence the decision to induce an index pregnancy resulting in incomplete abortion (Ahiadeke, 2001). The increasing number of pregnancies may affect decision to induce abortion if such experience has resulted in increasing number of children and therefore dependants. It could also increase frequency of incomplete abortion due to uterine incompetence as a result of its inability to establish implantation and or growth of foetus due to wear and tear from previous abortion experiences. There was no difference in the number of pregnancies in both cases and controls. On the contrary Klutsey& Ankomah,(2014) suggest that women with a higher number of pregnancies have a greater odds of induced abortion resulting in incomplete abortion . However, the number of children they had is a significant ($p=0.00$) predictor of having incomplete abortion and this was similarly observed by Ahiadeke, (2001); Mundigo, (2006); Behera et al., (2015) even though their studies were not comparative and therefore cannot be compared. This suggests that as the number of children increases per woman, she may have strong intention to seek for or induce subsequent unplanned or undesired pregnancies ending up in incomplete abortion. The trends and distribution of the number of children in both groups suggest that the cases had a relatively smaller number of children than the controls. Indeed whereas over 80% of the controls as compared to 59% of the cases had children, over 40% of the cases did not have children. This observation was also made by Ikeako et al., (2014) in descriptive study conducted in Nigeria where majority of incomplete patients were nulliparous women. The deduction therefore is that since most of the cases had had no children, the increasing number of children amongst them may not be a factor but rather because the index pregnancies may have been wanted but for obstetric incompetence of the reproductive tract or unwanted.

The incidence of incomplete abortion is also significantly influenced by the number of pregnancy loses by women. As shown in this study, whereas over 90% of the cases had had previous pregnancy loses, only about 50% of the controls had had same. The increasing incidence of previous abortion has been a contributory factor in the incidence of infertility recently in other studies conducted by Koster, (2010) and Sadeghi, (2012). In fact, as earlier mentioned, the incidence of incomplete abortion among the cases, could have been accounted by reproductive problems faced by the

women as a result of the complications or effects created by the increased pregnancy losses amongst the cases. Previous pregnancy losses and increasing number of pregnancy losses for a woman is a strong predictor of having incomplete abortion. Among women who had had children, the interval of birth between the last child and the index pregnancy could also be a predictor for induced abortion. For the cases, probably due to the previous experience of lost pregnancies, the attempt to have additional children is high yet ends up in incomplete abortion. This is not to impute that the intervals between the last child and the index pregnancies is long considering that over 55% in both cases and controls, it was less than three years.

Differences in Abortion Experience of Patients

Incidence of induced abortion in the district is very high. In this study the prevalence can be put at 43% among the women, far higher than past reported figures by other studies in Ghana (Taylor et al., 1994; Geelhoed et al., 2008; Sundaram et al., 2012). Notable researcher in the area of abortion in Ghana such as Ahiadeke also found a much lower prevalence (1.7%) in a study of 18,301 women aged 15-49 in four regions of Ghana (Ahiadeke, 2001), while Adanu et al., (2005) found a much higher rate (31%) in a hospital-based study population (Adanu et al., 2005). The Ghana Maternal Health Survey 2007 reported that 15% of women had had at least one induced abortion in their lifetime (Ghana Statistical Service, 1999). Abortion rates estimated for West Africa is as high as 28 per 1000 women, yet far lower than the rate in this study (PRB, 2011).

Previous abortion experience among cases and controls were significant predictors for incomplete abortion. The cases were 12.7 times more likely to have had experience of previous abortion however, the type of abortion experienced was not different among the groups. It can be inferred that the increasing exposure of abortion alone contributed to incapability of the cases to carry their pregnancies to term. Thus, induced abortion that usually results in complication in subsequent pregnancies such as occurrence of incomplete abortion, occurs equally in both cases and controls. Both cases and controls that had exposures to induced abortions used similar means including the use of enema, toxic solutions, and herbal concoctions. A similar observation was made by Rasch et al., (2014) in a hospital base study in Tanzania where women used herbal concoctions to induce abortion. These studies indicate that minority of both cases and controls used the hospital to induce abortions. This buttresses the finding by Behera et al., (2015) who studied induced abortion in India and asserted that only few women use the to induce abortion. Recently the issue of safe abortion services and the need to promote abortion friendly facilities continue to be discussed (Behara et al., 2015; Drovetta, 2015; Faúndes, et al., 2009; Faúndes, 2010, 2012; Kalilani-Phiri et al., 2015; Sedgh et al., 2012; Singh et al., 2010). The discussion has been embedded in issues related to morality and religion and to some extent the fear of abuse of such opportunity (Motaghi et al., 2013; Dupont et al., 2015). However, irrespective of the moral or religious positions, what is factual is that women continue to use dangerous and harmful substance to induce abortion as a result of unwanted pregnancies as seen in this study and as seen by Rasch et al., (2014) ;Valley et al., (2015) in their studies. Indeed the consequence is a contributory factor to the increase in infertility cases.

This study has therefore shown that the productive history background of cases and controls more particularly experiences with previous pregnancies is strong predictors of incomplete abortion and possibly induced abortion.

CONCLUSIONS

The following conclusions are drawn based on the hypothesis made that there is no difference between the

obstetric history and experience with abortion of cases and controls.

The number of children ($p=0.00$), age of the last child ($p=0.00$) and number of pregnancy losses ($p=0.00$) among the cases and controls were significantly different and influenced the incidence of incomplete abortion. There is evidence that having unwanted pregnancy accounts for 10%; having had a previous abortion 18%; and an experience of induced abortion (48%) explained the incidence of incomplete abortion among the cases. Cases were 12.7 times more likely to have had previous abortion. As such there is difference between the obstetric history and experience with abortion of cases and controls.

RECOMMENDATIONS

The district assembly should:

- Use the results of this study to guide and facilitate efforts needed by other agencies including Non-Governmental Organisation (NGO) to provide focused interventions on prevention of abortion. The predictors identified in this study could develop indicators required in assessing and financing reproductive health programmes focused on reducing abortion.
- Educate Assemblymen and Unit Committee members on the predictors of incomplete abortion among women in the district and assist them to self-develop socially acceptable means (e.g. use of community safe motherhood groups) to prevent abortion generally and incomplete abortions.
- The district health management team should:
 - Re-strategise the education efforts in preventing abortion generally and incomplete abortion in particular such that it would take into account individual differences based on the predictors identified. For instance, women who have incomplete abortion were more likely to have induced it hence, women who deliver with previous history of abortion could be educated and counselled on the use of family planning methods.
 - Inform and empower nurses and health educators in the district by providing them resources in terms of funds and learning aids, that could be used to enable users of the facility appreciate the complications related to incomplete abortion on their health and that of their dependants.
- Community leaders should:
 - Use this finding to assist their people make better reproductive health choices and promote the use of preventive methods including the use of modern contraceptives to prevent unwanted pregnancies that usually lead to incomplete abortion.
 - Organise women groups and community durbars to inform women of the risk associated with self-induced abortions.
 - Engage churches and mosques to assist to educate the community on promoting better reproductive health practices particularly prevention of unwanted pregnancies.

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