CLINICAL ARTICLE

Female autonomy and reported abortion-seeking in Ghana, West Africa

Sarah D. Rominski [a,*], Mira Gupta [a], Raymond Aborigo [b,c], Phillip Adongo [d], Cyril Engman [e], Abraham Hodgson [b,f], Cheryl Moyer [a,g]

[a] Global REACH, University of Michigan Medical School, Ann Arbor, USA
[b] Navrongo Health Research Centre, Ghana Health Service, Navrongo, Ghana
[c] Jeffrey Cheah School of Medicine and Health Sciences, MONASH University, Sunway Campus, Subang Jaya, Malaysia
[d] Department of Social and Behavioural Sciences, School of Public Health, University of Ghana, Accra, Ghana
[e] Department of Pediatrics and Maternal Child Health, Schools of Medicine and Public Health, University of North Carolina, Chapel Hill, USA
[f] Ghana Health Service, Accra, Ghana
[g] Department of Medical Education, University of Michigan Medical School, Ann Arbor, USA

ARTICLE INFO

ABSTRACT

Objective: To investigate factors associated with self-reported pregnancy termination in Ghana and thereby appreciate the correlates of abortion-seeking in order to understand safe abortion care provision.
Methods: In a retrospective study, data from the Ghana 2008 Demographic and Health Survey were used to investigate factors associated with self-reported pregnancy termination. Variables on an individual and household level were examined by both bivariate analyses and multivariate logistic regression. A five-point autonomy scale was created to explore the role of female autonomy in reported abortion-seeking behavior.
Results: Among 4916 women included in the survey, 791 (16.1%) reported having an abortion. Factors associated with abortion-seeking included being older, having attended school, and living in an urban versus a rural area. When entered into a logistic regression model with demographic control variables, every step up the autonomy scale (i.e. increasing autonomy) was associated with a 14.0% increased likelihood of reporting the termination of a pregnancy ($P < 0.05$).
Conclusion: Although health system barriers might play a role in preventing women from seeking safe abortion services, autonomy on an individual level is also important and needs to be addressed if women are to be empowered to seek safe abortion services.

1. Introduction

Complications from abortions are a major cause of maternal mortality, especially in low- and middle-income countries. WHO estimates that 47 000 women die annually from unsafe abortion [1], which is defined as a procedure for terminating a pregnancy that is carried out either by individuals lacking the necessary skills or in an environment that does not conform to minimum medical standards, or both [2]. An estimated 21.2 million unsafe abortions occur each year [1], and a disproportionate number of these procedures occur in Africa [3].

To reduce the burden of disease and disability attributable to unsafe abortion, it has been suggested that legal barriers should be removed and healthcare providers should be trained in safe abortion procedures [4]. The West African nation of Ghana has taken both of these

steps. Ghana liberalized the law governing abortion in 1985 and now has one of the most liberal abortion laws on the continent [5], permitting an abortion in the case of rape or incest, to save the life of the mother, to protect her mental or physical health, or in the case of malformation of the fetus. It also enables midwives—the healthcare providers most common in rural parts of the country where complications from unsafe abortions are prevalent—to be accredited to provide safe abortion services.

In 2003, the objective "to provide abortion services as permitted by law" was also added to the National Reproductive Health Policy and Standards Document [6]. In addition, the Ghana Health Service published the document "Prevention and Management of Unsafe Abortion: Comprehensive Abortion Care Services; Standards and Protocols" in 2006 to guide the implementation of safe abortion services at government hospitals across the country as part of the country's Reproductive Health Strategy [7,8].

Despite these actions, complications from unsafe abortions continue to be a large contributor to maternal death and disability. According to the Ghana Medical Association, unsafe abortion is the leading cause of maternal mortality, accounting for 15%–30% of maternal deaths

* Corresponding author at: University of Michigan Medical School, 240 Victor Vaughn Building, 3111 Catherine St, Ann Arbor, MI 48109, USA. Tel.: +1 734 764 6108; fax: +1 734 615 6300.
E-mail address: sarahrom@umich.edu (S.D. Rominski).

countrywide [9,10] and contributing a higher proportion of maternal deaths in rural as compared with urban areas [11]. Abortion complications are consistently a leading cause of admission to hospital, accounting for approximately 40% of all admissions to gynecologic wards [6,12,13].

Given that previous research has linked female autonomy in Sub-Saharan Africa to utilization of maternal health services [14], the aim of the present study was specifically to explore the role of female autonomy in reported abortion-seeking by using a nationally representative sample to investigate not only the prevalence of abortion in Ghana at a countrywide level, but also the factors associated with abortion-seeking in Ghana.

2. Materials and methods

In this retrospective analysis, data on abortion were analyzed from the 2008 Ghana Demographic and Health Survey (DHS) [15], the fifth nationwide demographic health survey of its kind. These data were collected between January 1 and December 31, 2008, in Ghana as part of the global Demographic and Health Surveys Program. Because the study used publically available and anonymized secondary data, it was exempt from ethical review by the University of Michigan Institutional Review Board.

The study data were obtained from the global DHS Program website (http://dhsprogram.com/), and were already formatted for use in Stata (StataCorp, College Station, TX, USA). The 2008 sample included 12 323 households from all 10 geographic regions within Ghana. In half of the households selected, 5096 women aged 15 — 49 years were identified for a supplemental women's questionnaire. Interviews were completed with 4916 women, yielding a 97% response rate [15]. Data were weighted to ensure representation.

The women's questionnaire collected information about the women themselves and any children born to them within the previous 5 years. Topics included education, residential history, reproductive history, family planning, prenatal and delivery care, infant nutrition, vaccinations, childhood illnesses, childhood mortality, and marriage and sexual activity.

For the present study, the dependent variable of interest was abortion-seeking, which was based on the respondent's answer to the question of whether she had ever had a pregnancy that was terminated. Independent variables included factors previously found to be associated with abortion-seeking, including age, education (having ever attended school), marital status, urban residence, and wealth. Other factors included as control variables were number of children ever born, living in one of the three northern regions of the country (upper east, upper west, and northern), ever having used modern contraception, and identifying as Muslim or Christian. The northern region variable was created on the basis of previous studies in these regions showing that abortion is seen not only as immoral but against nature [16], suggesting that women from these areas may be differentially able to seek abortion services owing to both a lack of healthcare services and sociocultural barriers.

Additional dichotomous variables were included to determine the impact of familiarity with the formal healthcare system ("have you sought care from a health clinic in the past 12 months," yes/no) and the impact of distance to a healthcare facility ("distance to a health facility is a big barrier," yes/no).

To measure autonomy, a crude composite score was created by using the following generally accepted components of autonomy: women's freedom of movement (as measured by the respondent answering yes to the question of her ability to visit friends and family without permission from her partner); discretion over earned income (as measured by the respondent answering that she decides how to spend the money that she earns); decision-making related to economic matters (as measured by the respondent answering yes to the question of whether she makes decisions about purchases for daily needs); women's ability to control her sexual relationships (as measured by the respondent answering yes to the question "are you able to refuse to have sex with your partner?"); and decision-making related to health care (as assessed by the respondent answering no to a question about needing permission to seek personal healthcare) [14].

These components were framed into five questions to create the autonomy scale. First, can you visit families and friends without seeking permission? Second, who decides how money you earn is spent (answered as the respondent)? Third, who makes decisions about purchases for daily needs (answered as the respondent)? Fourth, can you refuse sex with your partner? Fifth, do you need permission to seek care at a health facility? For the purpose of the study, the overall women's autonomy variable used all five questions (Table 1). The autonomy variable was created by recoding variables into an additive scale, ranging from 0 to 5, where 5 was the most autonomous.

All analyses were conducted via Stata version 9 (Stata Corp). Independent variables were examined via bivariate χ^2 analysis and multivariate logistic regression with abortion-seeking as the outcome of interest.

Multivariate logistic regression was conducted in stages, which first included only those variables found to be significant in a previous analysis, and then included the additional variables described above. The final, full model was compared against the initial simpler model to determine goodness of fit via the Akaike information criterion (AIC) and Bayes information criterion (BIC). The AIC value for the simpler model was 4037.26, and the corresponding BIC was 4076.258, whereas the AIC for the full model was 2237.695 and the BIC was 2312.095, suggesting that the full model was an overall better fit of the data than the shorter model. For all analyses, $P < 0.05$ was considered statistically significant.

3. Results

Of the 4916 women included in the 2008 Ghana DHS, 791 (16.1%) reported having terminated a pregnancy. Demographic and health statistics from the women's questionnaire are given in Table 2. Table 3 provides descriptive statistics of the respondents for those variables that were significant in bivariate analysis. Living in an urban versus rural area was significantly associated with reported abortion-seeking ($P = 0.003$), as was being married ($P < 0.001$), having ever attended school ($P < 0.001$), having more children ($P = 0.003$), ever used contraception ($P < 0.001$), having visited a health facility in the past 12 months ($P = 0.001$), living in the three northern regions of the country ($P < 0.001$), scoring higher on the autonomy scale ($P = 0.027$), and identifying as Christian ($P < 0.000$) or Muslim ($P = 0.05$).

Table 4 shows the results of the logistic regression using demographic variables found to be associated with abortion-seeking in previous work. The factors significantly associated with having terminated a pregnancy included age (being older; marginal effect of each year of age, 0.009), and having ever attended school. The marginal effect of 0.082 on the ever attended school variable suggested that women who had been educated were approximately 8.2% more likely to report having terminated a pregnancy than those who had not attended school. Being married and living in an urban versus rural area were not significantly associated with reporting having terminated a pregnancy.

Table 5 presents the results of the full logistic regression model, indicating further variables associated with reporting having terminated a pregnancy. Notably, being older and educated remained significantly associated with reported abortion-seeking. For every 1-year increase in age, the likelihood of seeking an abortion was almost 1% greater (marginal effect, 0.008). Living in the three northern regions of the country was negatively associated with reporting having an abortion (marginal effect, –0.082), and ever use of modern contraception was positively associated (marginal effect, 0.059). Being wealthier was also associated with reported abortion-seeking. The marginal effect of 0.030 on wealth quintile suggested that each step up in wealth quintile

Table 1
Demographic and Health Survey items used to create autonomy scale.

Item in the 2008 Ghana DHS	Response option indicating "high" autonomy
Can you visit families and friends without seeking permission?	Yes
Who decides how the money you earn is spent (answered as the respondent)?	Respondent herself
Who makes decisions about purchases for daily needs (answered as the respondent)?	Respondent herself
Can you refuse sex with your partner?	Yes
Do you need permission to seek care at a health facility?	No

Abbreviation: DHS, Demographic and Health Survey.

was associated with a 3% increase in the likelihood of reporting seeking an abortion.

Notably, the autonomy scale (Table 1) was significantly associated with reporting having had an abortion. The marginal effect of 0.1399 on the autonomy scale suggests that for each positive answer on the autonomy scale (i.e. from answering one to two questions in the affirmative), women were approximately 14% more likely to report having had an abortion.

4. Discussion

The present results suggest that reported abortion-seeking behavior is complicated by not only access to health workers and facilities where women can access these services, as previously suggested [17], but also by individual factors such as autonomy. Individual autonomy, as measured by a novel five-point scale created from existing DHS items, seemed to be associated with increased reporting of abortion-seeking, even when the analysis controlled for other factors.

The present findings identified education, wealth, and urban residence as primary correlates of reported abortion-seeking, combined with higher individual autonomy scores. What is not clear from the present analysis is whether such factors are actually proxies for the respondent's willingness to admit potentially stigmatizing information. It is plausible that women with greater education, higher wealth, stronger levels of individual autonomy, and residence in an urban location might feel empowered to admit that they have had an abortion, whereas less educated, poor, rural women may be just as likely to seek an abortion but much less likely to report it. In a cross-sectional analysis of an existing data source such as the DHS, such differences cannot be distilled.

In previously unpublished data from a qualitative study conducted in the upper east region of Ghana [16], respondents spoke of a widespread belief that abortions are common. In fact, older members of the community mentioned preventing young women who were newly pregnant from attending health facilities out of fear that they would abort their pregnancies. Although the women living in this area would be expected—on the basis of the results of the present analysis—to be the least likely to seek an abortion, it may well be that these women are simply less likely to report this behavior.

The finding that 16.1% of the women reported having had an abortion is slightly lower than that found in previous work. Specifically, Geelhoed et al. [18] found that 22.6% of respondents in their community-based survey of women in the Brong Ahafo region of Ghana reported having had an abortion. The nationwide proportion of 16.1% from the DHS is also lower than the 21.3% of survey respondents in the Volta region of Ghana who reported having had an induced abortion [19], but similar to the 10%–17.6% of women who reported during prenatal visits that their previous pregnancy ended with an abortion [20]. A larger community-based survey of 1689 women conducted in four of Ghana's 10 regions found an induced abortion rate of 27 per 100 live births [21]. The value of 16.1% in the DHS is considerably lower than the 36.7% of teenage girls who reported having at least one abortion in the Ejisu-Juabeng district in the Ashanti region of Ghana [22], and the 49.9% of women who reported having an abortion in Berekrum in the Brong-Ahafo region [19]. Krakowiak-Redd et al. [23] found that 20.0% of survey women in the Kumasi area reported having had an abortion.

It is feasible that the reasonably low rate of 16.1% found in the 2008 DHS is due to underreporting of pregnancy termination by participants. Sundaram et al. [24] estimated that approximately 60% of abortions were unreported in the 2007 Maternal Health Survey—a nationally

Table 2
Selected demographic and health statistics in the women's questionnaire.

Statistic	Total number of respondents	No. (%) of respondents
Ever terminated a pregnancy	4913	
No		4122 (83.9)
Yes		791 (16.1)
Missing		3 (0.06)
Type of place of residence	4916	
Urban		2162 (44.0)
Rural		2754 (56.0)
Wealth index	4916	
Poorest		1089 (22.2)
Poorer		921 (18.7)
Middle		897 (18.3)
Richer		1024 (20.8)
Richest		985 (20.0)
Married	4916	
No		2555 (52.0)
Yes		2361 (48.0)
Ever attended school	4916	
No		1243 (25.3)
Yes		3673 (74.7)
Total children ever born	4916	
0		1617 (32.9)
1		651 (13.2)
2		644 (13.1)
3		546 (11.1)
4		467 (9.5)
≥5		991 (20.2)
Ever used modern contraception	4916	
No		2878 (58.5)
Yes		2038 (41.5)
Visited a health facility in the past 12 months	4916	
No		2537 (51.6)
Yes		2376 (48.3)
Missing		3 (0.06)
Autonomy scale	2275[a]	
0		141 (6.2)
1		548 (24.1)
2		643 (28.3)
3		507 (13.0)
4		296 (13.0)
5		140 (6.2)
Distance to a health facility is a problem	4907	
Yes		1445 (29.4)
No		3462 (70.4)
Missing		9 (0.18)
Live in northern part of country	4916	
Yes		1322 (26.9)
No		3594 (73.1)
Christian	4906	
Yes		3630 (74.0)
No		1276 (26.0)
Muslim	4916	
Yes		832 (16.9)
No		4074 (83.0)

[a] The number of participants included in the autonomy scale is a subsample of the whole study population as only those who answered the five questions that make up the scale are included.

Table 3

Bivariate analysis of demographic variables and experience with pregnancy termination.

Variable	Terminated a pregnancy		P value
	Yes	No	
Place of residence			0.003
Urban	386	1775	
Rural	405	2347	
Wealth index			<0.001
Poorest	114	973	
Poorer	144	777	
Middle	144	753	
Richer	188	836	
Richest	201	783	
Married			<0.001
No	335	2220	
Yes	456	1902	
Ever attended school			0.003
No	166	1075	
Yes	625	3047	
Total children ever born			<0.001
0	132	1486	
1	130	521	
2	142	500	
3	103	443	
4	80	386	
≥5	204	787	
Ever used modern contraception			<0.001
No	310	2566	
Yes	481	1556	
Visited a health facility in the past 12 months			
No			
Yes			
Autonomy scale			0.027
0	21	120	
1	116	432	
2	128	512	
3	108	399	
4	74	222	
5	42	98	
Distance to a health facility is a problem			0.05
Yes	210	1234	
No	581	2879	
Live in northern part of country			<0.001
Yes	144	1176	
No	647	2946	
Christian			<0.001
Yes	613	3017	
No	176	1097	
Muslim			0.05
Yes	115	717	
No	674	3397	

representative questionnaire administered to 10 370 women. The Maternal Health Survey included questions pertaining to demographic characteristics, pregnancy and birth history, and, unlike the DHS, specifically about women's abortion experiences. In the Maternal Health Survey, 19.9% of the ever pregnant women reported having experience with an abortion, which is similar to the level of 16.1% found in the 2008 DHS. Given the potentially differential manners in which these studies assessed abortion-seeking, the variations might reflect a difference in semantics rather than in actual rates.

Table 4

Multivariate logistic regression.

	Coefficient (SE)	Marginal effect
Constant	−3.94 (0.482)	
Current age	0.068 [a] (0.005)	0.009
Place of residence—Urban	−0.150 (0.083)	−0.019
Married	0.050 (0.090)	0.006
Ever attended school	0.654 [a] (0.104)	0.082

Abbreviation: SE, standard error.

[a] Denotes significance at the 0.001 level.

Previous studies have reported demographic factors associated with having an induced versus a spontaneous abortion. All else being equal, younger, better educated, and unmarried women are more likely to report an induced abortion [24]. Wealth and urban status have also been associated with an increased likelihood of seeking an abortion [24]. Women living in urban areas with more disposable income and with higher levels of education may have greater ability to access a necessary induced abortion. The present analysis suggests that some of these previously identified demographic differences in abortion-seeking might be explained by sociocultural factors. For example, the influence of wealth was slightly mitigated, whereas the urban dwelling variable lost significance, when the autonomy scale was added to the analysis.

The study has a few important limitations. Most significantly, the outcome measure used was "reported terminated pregnancy," which may or may not be an accurate reflection of actual abortion-seeking. The analysis showed significant correlates with termination reporting; however, women with lower autonomy may simply be less likely to report this behavior. Thus, the present type of cross-sectional analysis, which would predict older, wealthier, more educated, and more autonomous women to have a higher need for abortion services, should not underpin national policy. Furthermore, the question asked in the DHS

Table 5
Logistic regression with pregnancy termination as the outcome variable.

Variables	Full model[a]		
	Coefficient (SE)	Marginal effect	P value
Demographic variables			
Current age	0.052 (0.009)	0.008	<0.001
Rural place of residence	0.195 (0.144)		
Married	−0.149 (0.140)		
Christian	−1.68 (0.203)		
Muslim	0.257 (0.239)		
Socio-economic variables			
Ever attended school	0.349 (0.152)	0.055	<0.01
Wealth quintile	0.189 (0.057)	0.030	<0.001
Northern region residence	−0.522 (0.172)	−0.082	<0.001
Access measures			
Ever used modern contraception	0.377 (0.111)	0.059	<0.001
Distance to a health facility is a problem	−0.026 (0.129)		
Main variable of interest			
Autonomy scale	0.088 (0.041)	0.1399	<0.05

Abbreviation: SE, standard error.

[a] The constant for the model was −3.94 (0.482).

was whether the respondent had ever had a pregnancy that was terminated, and this variable might have included spontaneous abortions and stillbirths in addition to induced abortions. Such broad wording in a nationally representative survey is extremely problematic, given the associated likelihood of measurement error. Nevertheless, the DHS and this particular question is the best assessment of abortion-seeking behavior on a national level in Ghana that is available for public analysis.

A second limitation is that there may be other factors associated with accessing safe abortion services beyond what was measured in the DHS. There are no questions in the DHS about the participant's knowledge of the law governing abortion in Ghana, nor whether she is knowledgeable about where to access these services. Both such factors are likely to be associated with accessing a safe abortion.

Another potential limitation to the study relates to the age of the data. The DHS data are now more than 5 years old, and it is possible that contextual factors have changed since the implementation of the survey in 2008. Nevertheless, we believe that abortion stigma and gaps in safe abortion access remain, and that women's attitudes, beliefs, and practices are unlikely to have undergone changes sufficient to nullify the value of the present findings.

A key strength is that—in addition to the conventional measures that have been employed in previous research on abortion-seeking in Ghana such as education, marital status, and age—the present study also includes a measure of women's autonomy. Besides its theoretic contribution to the knowledge of women's ability to seek a safe abortion, the present work has potential policy implications. Ghana's 1992 constitution guarantees human rights, of which reproductive rights are an integral part. However, a woman's autonomy and ability to exercise her rights are often closely linked to the customary laws and traditional practices of her community, which may limit the exercise of this right [15].

Improving knowledge and access to modern contraception has the potential to reduce the need for abortion services, although currently there are very low rates of usage of modern contraception in Ghana [25]. However, even if modern contraception usage were to increase markedly, a need will remain for safe abortion services. Ensuring that these services are available and accessible to all Ghanaian women is imperative if the proportion of maternal death and disability attributable to unsafe abortion is expected to fall. The regional differences in reported abortion-seeking discovered in the present analysis points to a potential need for policies and interventions that specifically target women in the more deprived rural areas to increase their ability to seek safe abortion services.

Conflict of interest

The authors have no conflicts of interest.

References

[1] World Health Organization. Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008. Sixth Edition. http://whqlibdoc.who.int/publications/2011/9789241501118_eng.pdf. Published 2011. Accessed March 6, 2014.

[2] World Health Organization. Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2000. Fourth edition. http://whqlibdoc.who.int/publications/2004/9241591803.pdf?ua=1. Published 2004. Accessed March 6, 2014.

[3] Shah I, Ahman E. Unsafe abortion: global and regional incidence, trends, consequences, and challenges. J Obstet Gynaecol Can 2009;31(12):1149–58.

[4] Cohen SA. Access to safe abortion services in the developing world: Saving lives while advancing rights. Guttmacher Policy Rev 2012;15(3):2–6.

[5] Morhe RAS, Morhe ESK. Overview of the law and availability of abortion services in Ghana. Ghana Med J 2006;40(1):80–6.

[6] Konney TO, Danso KA, Odoi AT, Opare-Addo HS, Morhe ESK. Attitude of women with abortion-related complications toward provision of safe abortion services in Ghana. J Womens Health 2009;18(11):1863–6.

[7] Taylor J, Diop A, Blum J, Dolo O, Winikoff B. Oral misoprostol as an alternative to surgical management for incomplete abortion in Ghana. Int J Gynecol Obstet 2011;112(1):40–4.

[8] Ghana Health Service. Prevention and management of unsafe abortion: Comprehensive abortion care services standards and protocols. Published June 2006.

[9] Asamoah BO, Moussa KM, Stafstrom M, Musinguzi G. Distribution of causes of maternal mortality among different socio-demographic groups in Ghana: a descriptive study. BMC Public Health 2011;11:159.

[10] Billings DL, Ankrah V, Baird TL, Taylor JE, Ababio KPP, Ntow S. Midwives and comprehensive postabortion care in Ghana. In: Huntington D, Piet-Pelon NJ, editors. Postabortion Care: Lessons from Operations Research. New York, NY: Population Council; 1999.

[11] Mills S, Williams JE, Wak G, Hodgson A. Maternal mortality decline in the Kassena-Nankana district of northern Ghana. Matern Child Health J 2008;12(5):577–85.

[12] Srofenyoh EK, Lassey AT. Abortion care in a teaching hospital in Ghana. Int J Gynecol Obstet 2003;82(1):77–8.

[13] Turpin CA, Danso KA, Odoi AT. Abortion at Komfo Anokye Teaching Hospital. Ghana Med J 2002;36(2):60–4.

[14] Fotso JC, Ezeh AC, Essendi H. Maternal health in resource-poor urban settings: how does women's autonomy influence the utilization of obstetric care services? Reprod Health 2009;6:9.

[15] Ghana Statistical Service, Ghana Health Service, ICF Macro. Ghana Demographic and Health Survey 2008. http://dhsprogram.com/publications/publication-FR221-DHS-Final-Reports.cfm . Published September 2009. Accessed March 3, 2014.

[16] Lithur NO. Destigmatising abortion: Expanding community awareness of abortion as a reproductive health issue in Ghana. Afr J Reprod Health 2004;8(1):70–4.

[17] Moyer CA, Aborigo RA, Logonia G, Affah G, Rominski S, Adongo PB, et al. Clean delivery practices in rural northern Ghana: a qualitative study of community and provider knowledge, attitudes, and beliefs. BMC Pregnancy Childbirth 2012;12:50.

[18] Geelhoed D, Nayembil D, Asare K, van Leeuwen JHS, van Roosmalen J. Gender and unwanted pregnancy: a community-based study in rural Ghana. J Psychosom Obstet Gynaecol 2002;23(4):249–55.

[19] Mote CV, Otupiri E, Hindin M. Factors associated with induced abortion among women in Hohoe, Ghana. Afr J Reprod Health 2010;14(4):115–21.

[20] Oliveras E, Ahiadeke C, Adanu RM, Hill AG. Clinic-based surveillance of adverse pregnancy outcomes to identify induced abortions in Accra, Ghana. Stud Fam Plan 2009;39(2):133–40.

[21] Ahiadeke C. Incidence of induced abortion in Southern Ghana. Int Fam Plan Perspect 2001;27(2):96–108.

[22] Morhe ESK, Tagbor HK, Ankobea FK, Danso KA. Reproductive experiences of teenagers in the Ejisu-Juabeng district of Ghana. Int J Gynecol Obstet 2012;118(2):137–40.

[23] Krakowiak-Redd D, Ansong D, Otupiri E, Tran S, Klanderud D, Boakye I, et al. Family planning in a sub-district near Kumasi, Ghana: side effect fears, unintended pregnancies and misuse of a medication as emergency contraception. Afr J Reprod Health 2011;15(3):121–32.

[24] Sundaram A, Juarez F, Bankole A, Singh S. Factors associated with abortion-seeking and obtaining a safe abortion in Ghana. Stud Fam Plan 2012;43(4):273–86.

[25] Adanu RMK, Tweneboah E. Reasons, fears and emotions behind induced abortions in Accra, Ghana. Inst Afr Stud Res Rev 2004;20(2):1–9.