




Research



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Utilization of Comprehensive Abortion Care (CAC) and associated factors among young people (10 - 24 years): a cross sectional study in the Tamale Metropolis, Northern Region of Ghana

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Abstract

Introduction: although abortion is legal under certain circumstances specify by the laws of Ghana, the complications arising from cruel abortion methods are still rampant in Ghana. In most developing countries, the consequences of unsafe abortions are underreported. The study is aimed at assessing Utilization of Comprehensive Abortion Care (CAC) and associated factors among young people (10 - 24 years) in the Tamale Metropolis. **Methods:** the study recruited 395 young girls using simple random sampling. The study employed the cross-sectional study design, conducted between March and June 2021. A structured questionnaire was used for the data collection. Univariate analysis was used to identify independent variables that were associated with the dependent variable. Variables that were significant at the univariate analysis stage were included in the multivariate analysis. A p -value < 0.05 was considered statistically significant. **Results:** we studied 395 young adults in the Tamale Metropolis. The majority (94.7%) of respondents have heard of abortion, 43.3% have heard about CAC services; media (89.5%) was the main source of information on CAC. Majority (68.9%) had good knowledge about CAC. Age ($\chi^2=12.1$, $p=0.002$), and marital status ($\chi^2=7.2$, $p=0.002$) were associated with overall knowledge on CAC. Only 10.1% have used CAC services. Age ($\chi^2=108.4$, $p<0.001$), level of education ($\chi^2=48.9$, $p<0.001$), marital status ($\chi^2=18.1$, $p<0.001$) and overall knowledge on CAC ($\chi^2=3.9$, $p=0.049$) were associated with CAC utilisation. Respondents who attained Senior High Schools and above were more

likely to use CAC services (AOR=27.4, 95% CI;14.8-74.4). **Conclusion:** the majority of the respondents had good knowledge of CAC. However, the utilisation was low with higher education, religion and culture being a major contributing factor to the use of CAC services. It is critical therefore to incorporate cultural and religious aspects of people's lives into health education, whilst motivating the girl child to seek higher education to broaden their knowledge about their sexual and reproductive life.

Introduction

Pregnancy is a crucial milestone in the life of women to procreate to warrant the continuity of life [1]. Though pregnancy is desired by every woman, sometimes it can be unintentional. When it happens this way, the women resort to terminating the pregnancy [2]. This termination of pregnancy is also referred to as abortion, which is defined as the deletion or expulsion from the uterus of a fetus or embryo before viability [3]. Comprehensive Abortion Care (CAC) refers to access to up-to-date contraceptives methods to avert accidental or unplanned pregnancy as well as improving the quality, availability, and accessibility of post-abortion care and scaling up access to harmless, lawful, voluntary, and reasonably priced abortion care services [4].

Abortion is not only a medical problem but also a social problem [5]. According to WHO, globally about 25 million unsafe abortions (i.e., 45% of all abortions) occurred each year between 2010 and 2014 [6]. Over 97.0% of unsafe abortion emanate from developing countries [7]. Globally, over 70,000 girls between the ages of 10 to 19 years are said to die per annum as a result of unintended pregnancy and childbirth, and about 3.2 million girls between the ages of 15 to 19 years are practicing unsafe abortions in lower and middle-income countries. Out of these numbers, young women below the age of 25 years in only Africa contributed to nearly two-thirds (i.e., over 65%) of all unsafe abortions in the world [8]. Abortion has

been lawful for over 35 years in Ghana and is supported by Ghana's Criminal Code Law: PNDC L 102 [3]. In Ghana, the condition for abortion to be lawful includes; abortions ought to be carried out by registered medical practitioners in registered health facilities and where a pregnancy is caused by rape, incest. Also, where the continuation of the pregnancy has the tendency to harm the mother's physical or mental health, or the fetus has a considerable danger of a serious abnormality [9]. In comparison with countries with more liberal abortion regulations, the frequency of unsafe abortions is greater in countries with more stringent abortion laws [7]. However, even in nations with liberal abortion laws [10] some women continue to rely on unsafe abortions due to some barriers such as onerous facility standards, bureaucratic processes, health workers attitude and consent from the guardian [11,12]. While there is evidence that self-management of abortions with the use of abortion pills such as misoprostol alone or misoprostol in conjunction with mifepristone might reduce maternal morbidity and mortality, insufficient information can lead to incorrect doses, resulting in illegal abortions [13]. According to Aniteye *et al.* [14], most Ghanaians are not aware of the abortion law, they have the notion that abortion is forbidden. Due to this belief, in Ghana and Africa at large, abortion rate estimates are far from accurate since most of the cases of abortion are performed cruelly and often done outside the registered health facilities [4].

In Ghana, (15%) of all women of childbearing age range (15-49 years) were reported to have sought unsafe abortions [15]. The rate of abortions in Ghana differs. According to Mote and colleagues [16], the abortion rate in Hohoe Municipality, Volta Region of Ghana was estimated as 21.3%, whereas the Brong Ahafo Region has a rate of 22.6% [17]. Unsafe abortion complications have major public health consequences in Ghana, since they increase maternal mortality and morbidity while diverting limited health resources [15]. The Ghanaian government has taken measures to mitigate the negative impacts

of unsafe abortions by enacting a safe abortion legislation, but the projected reduction in maternal fatalities has yet to materialize [18]. Ghana's abortion law has improved significantly since 1985 [9]. About 23 percent of young females aged 12-19 in the north have already been reported as mothers or pregnant [19]. Gumanga and colleagues [20] showed that abortion complications were the major cause of death among young women.

Presently in the Tamale metropolis, three government hospitals; West Hospital, Central Hospital, and the Tamale Teaching Hospital are accredited to provide CAC services. Also, Marie Stopes, Kabsad Scientific, Planned Parenthood, Ghana, and other over 20 health centers, private centers, and pharmacies have been credited to provide CAC service or identify people in need of CAC and immediately referred for appropriate attention at higher facilities [21]. There is very little literature on comprehensive abortion care in the Tamale Metropolis. As has been established, the issues of abortion are often not adequately documented [4,22]. This study therefore aimed at assessing the Utilisation of Comprehensive Abortion Care (CAC) and associated factors among young people (10 - 24 years) in the Tamale Metropolis. Aside from the laws, there have been many sensitization programs on CAC, this study would identify the progress made on CAC awareness and recommend strategies to make CAC services accessible to those who need them. The specific objectives of this study includes: knowledge on CAC and utilisation of CAC services. Also, the study explores the factors influencing CAC services utilisation among young people.

Methods

Study design: the community based analytical cross-sectional study design was used to assess the utilisation of Comprehensive Abortion Care (CAC) and associated factors among young people (10 - 24 years) in the Tamale Metropolis.

Study setting and population: the study was conducted in the Tamale Metropolis. The Tamale Metropolitan Assembly was established by legislative instrument (LI 2068) which elevated the then Municipal Assembly into a Metropolis in 2004. At present, it is one of the six Metropolitan Assemblies in the country and the only Metropolis in Northern Ghana is Tamale, which serve as the regional capital for Northern Region. The study was conducted between March to June 2021. The study population consisted of young people (10 - 24 years) in the Tamale Metropolis. For this study, the inclusion criteria included all females who reside in Tamale Metropolis for over a year, who are within the ages of 10 - 24 years, who are of sound mind and have agreed voluntarily to participant in this study. All other persons outside the inclusion criteria were excluded from the study.

Variables: in this study, the dependent variable was the use of CAC services. Independent variables included the socio demographics characteristics of the study participants such as the age, sex, educational status, marital status, religion and overall knowledge on CAC.

Data sources and measurement: data sources: The data was obtained mainly from the study participants.

Data collection tools: a structured questionnaire was used to gather data from the study participants. The questionnaire was adapted from pasted researches [4,12,23,24] and modified appropriately to suit the study participants and objectives.

Data collection procedures: prior to data collection, the research assistant clarified the notion of the study and obtained verbal permission. These research aides were trained on the data collections tools and study protocol. Though self-administered, for those who cannot read and write well enough, the questionnaire was appropriately translated into the local dialect for easy assimilation to solicit the appropriate

response from the chosen respondents. Sufficient training of the data enumerators was the foremost measure that was taken to safeguard the quality of data. To further ensure that the data collected was reliable and valid, the data collection was piloted at Dungu, a suburb of Tamale, among 20 (twenty) respondents. The essence of pre-testing was to aid in restructuring the questionnaire for consistency and to solicit the right information from the respondents. It also serves as an opportunity to ensure field enumerators use the data collection tools and asking relevant questions to avoid any error in the field. Double-entry of data was done in two data sets, which were compared at the analysis stage. This was useful in identifying some omissions during the data entry. Questionnaires were examined at the end of each day's work to ensure consistency. Adequate plans were put in place to ensure that data collected were entered into the data analysis software to ensure higher accuracy.

Sample size determination and sampling techniques and procedures

Sample size: the sample size was computed using the Snedecor and Cochran, [25] formula for a point estimate sample;

$$N = \frac{Z^2 pq}{m^2}$$

N= sample size, Z = z- score of a 95% confidence level (5% significance level) of the study equivalent to 1.96, p = estimated proportion of the population who were aware of CAC services in Tamale Metropolis is 43.6%. Hence, p = 43.6% (0.436) in this study [4], q = estimated proportion of pregnant women who do not use medication (1-p= 0.564), and m = margin of error of the study thus 100%- 95%= 5% = 0.05 in this study. Thus, the calculated sample size is approximately 378. Using a 5% non-response rate, the total number of people to be recruited for the quantitative data was 397 sample units.

Sampling techniques: the study employed Simple Random Sampling (SRS) to avoid biases as much as possible. Six communities were chosen at random. For each community we visited, we interviewed persons who met the inclusion criteria using the balloting system.

Measurement of study variables and analysis: a total of 397 were recruited for this study, representing a 100.0% response rate. However, after checking the questionnaires for completeness, 395 were considered to be used for the data analysis. Data was managed in SPSS version 25.0. Results were presented as frequency, percentages, Mean and standard deviation were used to describe the data. In this study, calculation of knowledge score on CAC was done out of 13 specific questions. A correct answer scored one (1) point, while wrong and don't know answers scored no (0) point. From the above, the sum of the score was computed (13). Thereafter, 50% was selected as cut off point so that those who are said to have had good knowledge on CAC scored 50% and above and poor knowledge on CAC scored below 50%. Chi-square analysis was used to detect association among study variables, and a p value lower than 0.05 was set as being statistically significant. Thereafter, all variables with p value \leq (less than or equals to) 0.25 were considered in a binary logistic regression model to establish the factors influencing Comprehensive Abortion Care (CAC) utilisation. However, in determining the factors affecting utilisation of CAC services, age was dropped even though in the Chi-square analysis the $p < 0.001$. This is because, the age variable was skewed after it was recategorized (< 18 years and ≥ 18 years), which has a tendency of altering the fitness of the model.

Ethical consideration: permission was granted from the University for Development Studies ethical review committee to undertake the study. Informed consent and assent were sought from study participants after explaining the study protocol to each participant. Confidentiality of data collected was ensured by using identifiers rather than the names of participants. Those who

refused to consent voluntarily were left out from the study.

Results

Socio-demographic characteristics: the study revealed that, 51.4% of the respondents were within the ages of 15 to 19 years. Over 95% of the respondents have had some level of education, with only 3.8% not being to school at all. The majority (58.5% and 92.2%) were Muslims and singles respectively, whilst 43.3% were Dagombas (Table 1).

Knowledge of Comprehensive Abortion Care (CAC) services: the majority (94.7%) of the respondents have heard of abortion, 67.6% believed abortion is illegal. Only 43.3% of the respondents have heard about (CAC) services. The sources of information of CAC includes; media (TV/Radio) (89.5%), health workers (14.0%), friends (50.3%), relatives (21.1%). Among those who have heard about CAC, 71.3% knew that CAC is about safe abortion services. Only 29.1% of the respondents knew health centers accredited for CAC services. The majority (93.4%) of the respondents chose health centers (hospitals) as a safe place to conduct CAC, 88.4% indicated that medical officers were the recommended personnel who could perform or conduct CAC, 67.8% believed that the preferred time to perform CAC is before 12 weeks gestation. The majority (68.9%) of respondents had good knowledge on CAC services, while 31.1% had poor knowledge (Table 2).

Utilization rate of Comprehensive Abortion Care (CAC) services: the majority of the respondents (89.9%) have never used CAC before, with only 10.1% indicating they have used CAC before. Only 16.5% visit accredited health centers for abortion services. Side effect of abortion (69.9%), religion and culture (54.4%), pain (48.6%), harassment by health workers (33.2%) were reasons some respondents refused to patronize CAC services (Table 3).

Bivariate analysis between socio-demographics and Knowledge and utilisation of Comprehensive Abortion Care (CAC) services: the study showed that age ($\chi^2=12.1$, $p=0.002$), and marital ($\chi^2=7.2$, $p=0.002$) were associated with the overall knowledge on CAC. On the association between socio-demographic characteristics and use of CAC services, the study established a significant statistical association between the use of CAC services and age ($\chi^2=108.4$, $p<0.001$), level of education ($\chi^2=48.9$, $p<0.001$), marital status ($\chi^2=18.1$, $p<0.001$), and overall knowledge on CAC ($\chi^2=3.9$, $p=0.049$) (Table 4).

Multivariate analysis for factors influencing the utilisation of CAC: higher education (SHS and above) of respondents was a significant determinant to the utilisation of CAC services (AOR=27.4, 95%CI=14.8-74.4, $p<0.001$) (Table 5).

Discussion

The study aimed at assessing the Utilisation of Comprehensive Abortion Care (CAC) and associated factors among young people (10 - 24 years) in the Tamale Metropolis. The study revealed that majority of the respondents had appreciable knowledge on the CAC with only 10.1% reported to have used CAC services. Higher education was identified as a key determinant to the use of CAC services. The study revealed that the majority of the respondents were unaware of comprehensive abortion care. This is similar to a study conducted by Nuuri-Teg [4], where most adolescents were said to be unaware of the Comprehensive Abortion Care (CAC). In these studies, the study participants were young people and studies were conducted in the Tamale metropolis. However, the study is inconsistent with Sydén [26], who found in the study conducted in India among female medical students that the majority of the study participants were aware of CAC services. It is believed that these respondents might have been taught in the classroom as part of their course work. Also, differences could be attributed to

cultural and religious background among the study participant. Notwithstanding above, in India there are drastic measures to control the population growth, and as such information regarding Sexual and Reproductive Health (SRH) issues are made readily available so as to guide the population in making informed sexuality and reproductive choices [27,28].

The majority of the respondents had information about CAC from the media (TV/Radio). This is consistent with Gizaw [29], who reported that the majority of the respondents mentioned media (television, radio, and newspaper) as the source of information for abortion. Also, Mekuriaw *et al.* [30] in their study revealed that more than half of the participants reported mass media as their main sources of information. This is because there are a lot of advertisement on the media (especially Radio and TV) about SRH issues. However, Abiola *et al.* [31] reported that the most common source of information about abortion was friends. This discrepancy could be associated with the socio-cultural and general perception towards CAC services in these locations. Contrary to the findings of this study on the source of information on CAC services, Nair *et al.* [32] revealed that health workers were rated as highest when it comes to dissemination of information on reproductive health services followed by newspapers, then radio, friends, and Family. The difference however could be influenced by the socio-demographic characteristics of the respondents even though they were all female students. In the current study, the health workers and schools were among the least source of information. Also, the extreme low adolescent friendly centers in the Tamale metropolis could account for these discrepancies. It therefore means that, to target a higher audience (adolescent) on information regarding CAC and SRH issues in general, there ought to be a deliberate intervention by the Ministry of Health and Ministry of Education to get the health workers and schools to educate the general population especially the young people (10 to 24 years) on Comprehensive Abortion Care and SRH

in Ghana. This will enable young people to make informed decision if they ever consider abortions.

This study also indicated that, the majority of the respondents were not aware of abortion laws in Ghana. This is similar to studies in Nepal which report that majority of women from their entire population were not aware of the abortions laws more than decades after legalizing safe abortion services [33]. Similarly, in Ethiopia, more than 66% of the study participants were unaware of laws in the country making abortion care legal [34]. Another study in Ethiopia further supported the current findings where only 38.8% replied that Ethiopian law allows abortion [35]. This is because there is no enough sensitization on the laws of the country. Surprisingly, some health care providers were not also aware of laws regarding abortion care services in Ghana [36]. Another study in Ghana also reported that only 3% of pregnant women and 6% of women seeking an abortion are aware of Ghana's abortion law [37]. The difference in the findings could be a result of the age difference, educational status among the respondents. In relation to above, knowledge of CAC was associated with Age ($\chi^2=12.1$, $P=0.002$) and Mother's education status ($\chi^2=8.6$, $P=0.07$). Thus, if mothers get educated, they would intend educate their children on these issues. With increasing age, young people tend to also get more information about their reproductive health issues [37]. Also, there is the need for increase sensitization of the abortion laws among the general population to increase the usage of CAC services. Health facilities were mentioned by the majority as a safe place to perform CAC. This is consistent with a study where the majority of the respondents 155 (38.46%) mentioned hospital as a place where safe abortions are performed [30]. This is so because safe abortion is supposed to be conducted in a safe and clean environment. This is to prevent post-abortion infection. Also, in the course of termination of pregnancy, some complications may arise which may need immediate attention such as blood transfusion, rushing to theatre for surgeries, etc. In the hospital

environment, adequate preparation is being made to mitigate any of these issues when they occur especially among those whose pregnancies have advanced.

Overall, the majority of the respondents had good knowledge of Comprehensive Abortion Care (CAC). This is consistent with a study where most of the respondents (83.3%) had good knowledge of abortion care [38]. Also, another study found that majority of female undergraduates had good knowledge of complications of abortion in Nigeria [39]. Furthermore, Abiola *et al.* [31] showed that the majority of respondents had good knowledge of CAC. The finding is however contrary to a study in which the majority of the female undergraduate students had low knowledge regarding abortion, though most of them have a positive attitude towards abortion [40]. The difference could be attributed to the difference in the study settings, methodology used, and socio-demographic characteristics among the respondents. On utilization of CAC, the majority of the respondents (89.9%) have never used CAC before. Charlton *et al.* [41] revealed that about 40% of respondents outside of Kumasi had an abortion before. However, Aniteye and Mayhew [14], showed that between 10% and 17.6% of women in their research reported having had induced or spontaneous abortion in their previous pregnancies. In all these cases, the utilization of CAC and abortions are often underestimated. This is because many young people often are not too comfortable to disclose or report that they have an abortion due to religious and socio-cultural reasons. Thus, the survey on abortions is often underestimated. For instance, the Ghana Maternal Health Survey showed that 7% of all pregnancies end in abortion, and 15% of women aged 15 had ever had an abortion. The survey also indicated that about 15 abortions are performed for every 1,000 women of reproductive age (15-44) each year. The level of abortion in Ghana appears to be lower than in Western Africa as a whole, where the rate stands at 28 procedures per 1,000 women [15].

With this increasing rate of abortion reported in Ghana, efforts need to scale up to ensure that person who require abortion services gets them with ease. Already some study conducted in Ghana showed that most people resort to unsafe abortion practices because there is no privacy in our health facilities, negative attitude of health professionals towards young people and abortion care requiring consent of a guardian [11,12]. Also, in Ghana comprehensive abortion care services are charged at most facilities. Persons who are financially challenged may have to resort to cruel means. Thus, we urge future researchers to consider exploring in-depth studies on the determinants of the utilization of CAC services in Ghana. This will provide sufficient information on CAC services and ways to increase the uptake among the general population. In this study, only about 10.0% of the respondents mentioned that they have used CAC services. What it means is that more young people would have engaged in cruel abortion methods that go unreported. The essence of CAC is to prevent mortality and morbidity associated with unsafe abortion. However, to meet these objectives, efforts need to be put up to ensure the effective utilization of CAC services through the provision of adolescent corners and specialized health facilities for young people.

On the ways people use to terminate an unwanted pregnancy, 18.5% of the respondents use medicines. Some of these medicines are obtained at the drugs stores without any advice. In Ghana, many people resort to the licensed pharmacies or chemical shops to seek health care despite the accessibility of safe abortion providers in health facilities [42]. In this study, most of the respondents mentioned accessibility to CAC services as a factor that could influence them to use CAC services. Most of the operators of these pharmacies or chemical shops are often managed by persons with no or limited knowledge on drugs but are licensed to operate [43]. These practice of resorting to chemical shops; herbs are rampant in the rural areas where access to health care facilities is scarce [42].

In this study, it was further revealed that most young people prefer to do abortion outside the hospital. This is similar to the reports of the Ghana Pharmacy Council which indicated that young people prefer to go to the pharmacy to seek abortion care because these facilities are often many and are more accessible, they are often known to have longer opened hours than public health facilities, with very short waiting time and staff of such facilities are friendlier than public health facility staff [44]. We feel this is alarming and efforts need to be put up to scale up the use of CAC services in Tamale Metropolis and Ghana at large. In addition, higher education (SHS and above) of respondents was a significant determinant to the utilisation of CAC (AOR=27.4, 95%CI=14.8-74.4). It is believed that with higher education, young people tend to get more information on their reproductive and sexual health issues. With higher education, people are able to make informed decisions and choices about their reproductive health.

Limitation: as with self-reported surveys, our research might be exposed to information predispositions coupled with our inability to confirm responses given. However, the study provides population-based data on the utilisation of CAC services among young people in Northern Ghana.

Conclusion

In conclusion, the majority of the study participants had good knowledge of comprehensive abortion care. However, the utilization was observed to be low with higher education, religion and culture being a major contributing factor to the use of CAC services. Of all the other sources of information, the study observed that most respondents have heard about CAC through the media (TV, Radio, or Internet). It is critical therefore to incorporate cultural and religious aspects of people's lives into health education, whilst motivating the girl child to seek higher education to broaden their knowledge

about their sexual and reproductive life. Community leaders, key informants, and opinion leaders must be informed on sensitive issues that may stymie the acceptability of public health measures like comprehensive abortion care. Governments and civil society organizations should work to ensure that all women, particularly young girls, have access to safe and legal abortion services to the full extent of the law, as well as publicize the availability of these services in public health facilities and ensure that they are affordable to poor and rural women.

What is known about this topic

- *Over 97.0% of unsafe abortion emanate from developing countries;*
- *Abortion has been lawful for over 35 years in Ghana and is supported by Ghana's Criminal Code Law: PNDC L 102.*

What this study adds

- *The majority of respondents had good knowledge of CAC but only 10.1% ever used CAC before;*
- *Higher education (SHS and above) of respondents was a significant determinant to the utilisation of CAC services;*
- *To increase utilisation of CAC services, it is critical therefore to incorporate cultural and religious aspects of people's lives into health education; community leaders, key informants, and opinion leaders must be informed on sensitive issues that may stymie the acceptability of public health measures like comprehensive abortion care.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Conceptualization: Mubarick Nungbaso Asumah, Abdulai Abubakari, Abdul-Mumin Amankwa,

Daniella Owusu, Faustina Fosuah, Juliet Anane; Data collection: Daniella Owusu, Faustina Fosuah, Juliet Anane; Data curative: Mubarick Nungbaso Asumah, Abdulai Abubakari; Formal analysis: Mubarick Nungbaso Asumah, Abdulai Abubakari; Project supervision: Abdulai Abubakari; Contributed to writing the manuscript; Original draft: Mubarick Nungbaso Asumah, Abdul-Mumin Amankwa, Daniella Owusu, Faustina Fosuah, Juliet Anane; Review and editing: Abdulai Abubakari, All authors proofread and approved the final version of the manuscript.

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Tables and figures

Table 1: socio demographics characteristics of the study participants

Table 2: knowledge on comprehensive abortion care (CAC) services

Table 3: utilization rate of comprehensive abortion care (CAC) services

Table 4: bivariate analysis between socio-demographics and Knowledge and utilisation of comprehensive abortion care (CAC) services

Table 5: multivariate analysis for factors influencing the utilisation of CAC

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Table 1: socio demographics characteristics of the study participants

Variables	Categories	Frequency (%)
Age	10-14 years	77 (19.6%)
	15-19 years	203(51.4%)
	20-24 years	115(29.1%)
	Mean	17.6±3.5
Respondents level of education	No formal education	15(3.8%)
	Primary	42(10.6%)
	JHS	134(33.9%)
	SHS	126(31.9%)
	Tertiary	78(19.7%)
Religion	Christianity	159(40.3%)
	Islam	231(58.5%)
	Traditionalist	5(1.3%)
Marital status		
	Married	31(7.8%)
	Single	364(92.2%)
Ethnicity		
	Akan	63(15.9%)
	Dagomba	167(42.3%)
	Gonja	45(11.4%)
	Mamprusi	79(20.0%)
	Others	41(10.4%)
Mother's level of education		
	No formal education	143(36.2%)
	Primary	61(15.4%)
	JHS	42(10.6%)
	SHS	84(21.3%)
	Tertiary	65(16.5%)
Father's level of education		
	No formal education	133(33.7%)
	Primary	29(7.3%)
	JHS	38(9.6%)
	SHS	74(18.7%)
	Tertiary	121(30.5%)
JHS; Junior high school, SHS; senior high school		

Table 2: knowledge on Comprehensive Abortion Care (CAC) services		
Variables	Categories	Frequency (%)
Have you ever heard of abortion	Yes	374(94.7%)
	No	21(5.3%)
Is abortion legal	Yes	128(32.4%)
	No	267(67.6%)
Heard of comprehensive abortion care (CAC)	Yes	171(43.3%)
	No	224(56.7%)
What do you know about CAC	It's a legal form of abortion care	57(33.3%)
	Contraceptive methods	14(8.2%)
	It's about safe abortion services	122(71.3%)
	only for teenagers with pregnancy	91(53.2%)
Source of information	Media (TV/Radio)	153(89.5%)
	Health worker	24(14.0%)
	Friends	86(50.3%)
	Relatives	36(21.1%)
Age limit for CAC services	Yes	192(48.6%)
	No	203(51.4%)
Indications for abortion*	Birth spacing	10(2.5%)
	Lack of family support	3(0.8%)
	Mother's education	83(21.0%)
	Risk of pregnancy to mother	169(40.5%)
	To choose the right time for pregnancy	78(19.7%)
	Women not psychological prepared	61(15.4%)
Health center accredited for CAC	Yes	115(29.1%)
	No	280(70.9%)
Safe place to conduct CAC	Home	31(7.8%)
	Health center	369(93.4%)
	Pharmacy	5(1.3%)
	Herbalist	6(1.5%)
Persons who can conduct CAC*	Medical officer	349(88.4%)
	Midwives	196(49.6%)
	Any health professionals	52(13.2%)
	TBA	10(2.5%)
	Herbalist	7(1.8%)
Preferable time to perform CAC?	After 16 weeks	6(1.5%)
	Before 12 weeks	268(67.9%)
	Don't know	121(30.6%)
Are there complication with CAC	Yes	259(65.6%)
	No	136(34.4%)
Complication of CAC*	Bleeding	231(89.2%)
	Death	32(12.4%)
	Infertility	71(27.4%)
	Severe illness	54(20.8%)
Overall knowledge	Good Knowledge (50% and above)	272(68.9%)
	Poor knowledge (<50%)	123(31.1%)

* Multiple response, TBA-Traditional birth attendant, TV-Television

Table 3: utilization rate of comprehensive abortion care (CAC) services

Variables	Categories	Frequency (%)
Ever used CAC before		
	Yes	40(10.1%)
	No	355(89.9%)
Ways people use to terminate an unwanted pregnancy		
	Use of medications	73(18.5%)
	Use of herbs and other mixtures	23(5.8%)
	Visiting accredited health center	65(16.5%)
	None response	234(59.2%)
Reasons you would not go for CAC services*		
	Pains enduring in an abortion procedure	192(48.6%)
	Insults and harassment by health workers	131(33.2%)
	Lack of support from my partner	49(12.4%)
	Fear of the side effect	276(69.9%)
	Religious and cultural reason	215(54.4%)
What influences you most to utilize CAC services		
	Access to CAC	84(21.3%)
	Awareness about CAC	39(9.9%)
	Household income status	24(6.1%)
	Autonomy	53(13.4%)
	Youth friendly service	101(25.6%)
	Low charges of CAC services	94(23.7%)
*Multiple response		

Table 4: univariate analysis between socio-demographics and knowledge and utilisation of Comprehensive Abortion Care (CAC) services

Variables	Categories	Overall knowledge on CAC			CAC utilisation		Statistical Test
		Good knowledge	Poor Knowledge	Statistical Test	Yes	No	
Age	10-14 years	42(54.5%)	35(45.5%)	$\chi^2=12.1$	0(0.0%)	77(100.0%)	$\chi^2=108.4$
	15-19 years	140(69.0%)	63(31.0%)	p=0.002	0(0.0%)	203(100.0%)	p<0.001
	20-24 years	90(78.3%)	25(21.7%)		40(34.8%)	75(65.2%)	
Respondent level of education	No formal education	7(46.7%)	8(53.3%)	$\chi^2=7.6$	1(6.7%)	14(93.3%)	$\chi^2=48.9$
	Primary	24(57.1%)	18(42.9%)	p=0.11	6(14.3%)	36(85.7%)	p<0.001
	JHS	97(72.4%)	37(27.6%)		0(0.0%)	134(100.0%)	
	SHS	87(69.0%)	39(31.0%)		10(7.9%)	116(92.1%)	
	Tertiary	57(73.1%)	21(26.9%)		23(29.5%)	55(70.5%)	
Religion	Christianity	111(69.8%)	48(30.2%)	$\chi^2=2.0$	17(10.7%)	142(89.3%)	$\chi^2=0.7$
	Islam	159(68.8%)	72(31.2%)	p=0.37	22(9.5%)	209(90.5%)	p=0.71
	Traditionalist	2(40.0%)	3(60.0%)		1(20.0%)	4(80.0%)	
Marital status	Married	28(90.3%)	3(9.7%)	$\chi^2=7.2$	10(32.3%)	21(67.7%)	$\chi^2=18.1$
	Single	244(67.0%)	120(33.0%)	p=0.002	30(8.2%)	334(91.8%)	p<0.001
Mother's level of education	No formal education	101(70.6%)	42(29.4%)	$\chi^2=8.6$	124(86.7%)	19(13.3%)	$\chi^2=3.3$
	Primary	48(78.7%)	13(21.3%)	p=0.07	57(93.4%)	4(6.6%)	p=0.51
	JHS	30(71.4%)	12(28.6%)		37(88.1%)	5(11.9%)	
	SHS	57(67.9%)	27(32.1%)		77(91.7%)	7(8.3%)	
	Tertiary	36(55.4%)	29(44.6%)		60(92.3%)	5(7.7%)	
Father's level of education	No formal education	103(77.4%)	30(22.6%)	$\chi^2=7.8$	118(88.7%)	15(11.3%)	$\chi^2=3.9$
	Primary	21(72.4%)	8(27.6%)	p=0.10	28(96.6%)	1(3.4%)	p=0.42
	JHS	24(63.2%)	14(36.8%)		33(86.8%)	5(13.2%)	
	SHS	47(63.5%)	27(36.5%)		64(86.5%)	10(13.5%)	
	Tertiary	77(63.6%)	44(36.4%)		112(92.6%)	9(7.4%)	
Overall knowledge	Good knowledge				33(12.1%)	239(87.9%)	$\chi^2=3.9$
	Poor knowledge				7(5.7%)	116(94.3%)	p=0.049

JHS; Junior high school, SHS; senior high school

Table 5: multivariate analysis for factors influencing the utilisation of Comprehensive Abortion Care (CAC)

Variables	Categories	AOR	95% CI	P value
What is your marital status	Married	Ref*		p=0.72
	Single	1.18	0.48-2.88	
Level of education	Less than SHS	Ref*		
	SHS and above	27.4	14.8-74.4	p<0.001
Overall knowledge	Poor knowledge	Ref*		
	Good knowledge	0.98	0.36-2.67	p=0.23
SHS; senior high school				