



International Journal of Multidisciplinary Studies and Innovative Research

Publisher: Catholic University of Ghana
Editor-In-Chief: Prof. Daniel Obeng-Ofori

ISSN: 2737-7172 (O), ISSN: 2737-7180 (P)
Volume 10, Number 01, pp. 1392-1396
DOI: [10.53075/Ijmsirq/68743045656](https://doi.org/10.53075/Ijmsirq/68743045656)

Knowledge, Attitude, Utilization and Barriers to Emergency Contraception among Reproductive-Age Women Between 15 and 24 Years in Ghana's Poor and Low-Resource Settings: The Case of East-Gonja Municipality

Richmond Nketia,¹ Uzairu Shaibu,² Daniel Atta-Nyarko,³ Francisca Naana Arthur,⁴ Austin Gideon Adobasom-Anane,⁵ and Yaw Boakye Nketiah⁶

^{1,2} Department of Medicine, East Gonja Municipal Hospital, P. O. Box 12, Salaga, Ghana

³ Allied Health Professions Council, Ministry of Health Ghana, P. O. Box 943, Korle-Bu, Accra-Ghana

⁴ Margret Marquart Catholic Nursing Training College, P. O. Box 97, Kpando, Ghana

⁵ Global Health and Infectious Disease Group, Kumasi Centre for Collaborative Research, KCCR, UPO, PMB, KNUST, Kumasi, Ghana

⁶ Department of Health Information Management, College of Health, P. O. Box 23, Yamfo, Ghana

Corresponding author: Richmond Nketia, E-mail address: nketiarichmond17@gmail.com

Date received: July 27, 2022

Date published: August 27, 2022

Abstract: Improving access and use of modern contraceptive methods such as emergency contraceptive (EC) has been suggested, among other healthcare continuum, as the solution to the global population dilemma. However, there is a paucity of data on modern contraceptive use and associated factors in Ghana's impoverished and low-resource settings. This study sought to examine the level of knowledge on EC, attitude towards EC, utilization, and barriers to EC among reproductive-age women between 15 and 24 years in the East-Gonja Municipality of Ghana. The study was conducted in Salaga, the administrative capital of the East-Gonja Municipality, using a school-based, descriptive cross-sectional study design. The study population comprised of female students from the Salaga Senior High School (SHS). Data were collected using structured, self-administered questionnaires. Analysis was done using Statistical Package for Social Sciences version 25. About 62% of the respondents had inadequate knowledge on EC. More than half (56.5%) of the sample who reported prior awareness of EC showed a negative attitude toward EC. Less than half (48.5%) of the respondents who indicated had ever engaged in vaginal intercourse reported ever-use of EC. The major reason for EC non-use was fear of stigma (62.0%). Although the majority of the respondents were aware of EC, most of them demonstrated inadequate knowledge and poor attitude toward EC, the former being a major reason for EC non-use. Our findings suggest the need for comprehensive Sexual and Reproductive Health (SRH) education and improved access to modern contraceptives among adolescents and youth in the East-Gonja municipality.

Keywords: Knowledge; attitude; utilization; barriers; emergency contraceptive.

1. INTRODUCTION

Despite being one of the least developed regions in the world, Africa's population is growing faster than any other continent (Ahinkorah *et al.*, 2020; Wilmoth *et al.*, 2022), a situation which has a potentially far-reaching negative impact on the region's socio-economic development (Kaba, 2020). Improving access and use of modern contraceptives has been suggested, among other healthcare continuum, as the solution to the global population dilemma (Kaba, 2020). For instance, findings from recent global population studies suggest that addressing all unmet needs for modern contraceptives could reduce the incidence of unplanned pregnancies and childbirths by approximately 75% (Ndayizigiye *et al.*, 2017), one of the greatest developmental milestones the world would have witnessed in the 21st century. At the time when several contraceptive methods are available on the market, emergency contraceptive (EC) remains an irreplaceable method of family planning. EC is a family planning method that can be used after failure of barrier contraceptive methods, sexual assault, and/or missed oral contraceptive pills to prevent pregnancy (Hussain & Kavanaugh, 2021).

However, recent studies have found a strong correlation between residence in an impoverished community and lack of access and utilization of sexual and reproductive healthcare (SRH) services including family planning (Hellwig *et al.*, 2021), which has resulted in several unintended and unwanted pregnancies (Asamoah & Agardh, 2018). Contemporary evidence proves that this inequality often exist within and between-country in sub-Saharan Africa (SSA) (Jko *et al.*, 2020). Consequently, there is persistently high number of unplanned pregnancies among adolescents and youth in the region (United Nations Population Fund [UNFPA], 2010).

Although specific programs like the Adolescent Health Service Policy and Strategy (AHSPS) (Ghana Health Service [GHS], 2016) have resulted in decreased incidence of adolescent

pregnancy in Ghana, the progress has been uneven. For instance, following the implementation of the AHSPS, the incidence of adolescent pregnancy in the Savannah region of Ghana rose by 13.3% between 2018 and 2020, despite a 5.7% reduction at the national level (Lartey, 2021). Similar disparities are evident in other countries in Africa (Bamiwuye, *et al.*, 2013; ; Ndayizigiye *et al.*, 2017; Ahinkorah *et al.*, 2020; Hellwig *et al.*, 2021), reflecting the existing inequity in access to SRH services in the region and the need for an effective intervention (Duran *et al.*, 2016).

Unfortunately, little is known about the knowledge, awareness, attitude, utilization and barriers to EC among reproductive-age women in one of Ghana's most impoverished and low-resource settings, the East-Gonja Municipality. This study, therefore, sought to fill the existing knowledge gap by assessing the knowledge on EC, attitude toward EC, utilization and barriers to EC among adolescents and youth in Salaga, the administrative capital of the East-Gonja Municipality in the Savannah Region of Ghana. The findings from this study could help to inform SRH policy development at the local and national levels.

2. MATERIALS AND METHODS

Study design and study area

We used a descriptive cross-sectional study design. The study was conducted in Salaga, the administrative capital of the East-Gonja municipality in the Savannah region of Ghana. The East-Gonja municipality is located at the eastern part of the Savannah Region. According to report from the 2021 population and housing census, the municipality has a population of 117,755 (third highest in the Savannah Region). Males constitute 51.1% (60,199) of the total population. More than half of the population live in rural communities (n = 85216; 72.4%) (Ghana Statistical Service, 2021). The Municipality is divided into seven (7) sub-municipals – Salaga North, Salaga South, Kafaba, Kayereso, Makango, Buma and Aboromase (East Gonja Municipal Health Directorate, 2022). There is one (1) hospital,

one (1) polyclinic, four (4) health Centers/Clinics and twenty-six (26) functional CHPS zones in the East-Gonja Municipality (Ministry of Finance - Ghana, 2021). A recent report by the Ghana National Household Registry (GNHR) and Data Dissemination showed that the East Gonja municipality has the second highest poverty rate in the

Savannah region (70.0%), after North East Gonja district (Laari, 2021). There are two second-cycle institutions in the municipality offering co-education for both resident and non-resident students – Salaga SHS, and T. I. Ahmadiya SHS, the former being the oldest and most populous.

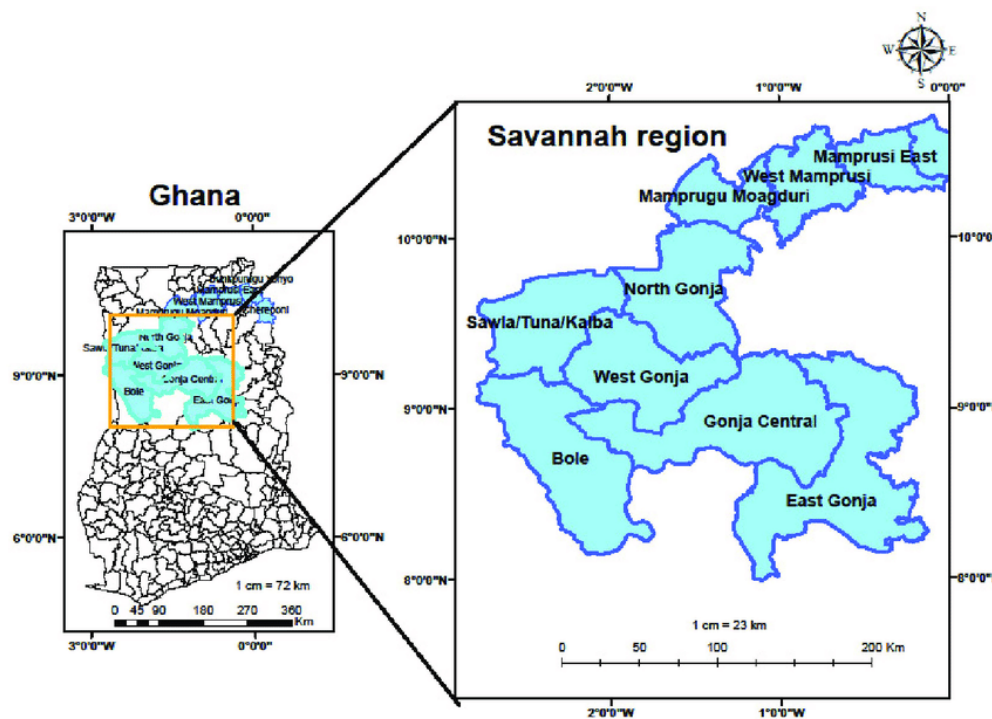


Fig. 1 Map of the Savannah Region of Ghana showing the study area - East Gonja municipality. Source: Seglah *et al.* (2022).

Study population and sampling method

The target population comprised of students of the Salaga SHS. Data obtained from the institution's academic office showed that at the time of the study, the school had 1,559 student populations, comprising 857 females and 702 males. Based on this, the sample size for the study was determined using the Yamane (Yamane, 1967) simplified formula with the following assumptions; a 95% Confidence Interval (CI), and a 5% absolute precision (e). The estimated sample size ($n \geq 268$) was increased by 10% to take care of non-response and incomplete questionnaires. Thus, the total sample size for the study was estimated as 295.

Data collection

Structured, self-administered questionnaires were used to collect data for the study. The instrument was adapted from the literature (Semero *et al.*, 2015; Mishore *et al.*, 2019; Shakya & Ghimire, 2020; Menene *et al.*, 2020; Mesfin, 2020; Mamuye *et al.*, 2021) and modified to suit the specific objectives of this study. The first component of the instrument assessed respondents' socio-demographic data. The other sections contained questions on respondents' knowledge on EC, attitude toward EC, utilization and barriers to EC. Data were collected in July 2019, at the Salaga SHS. Two probability sampling techniques – stratified and systematic sampling techniques were used to recruit respondents for the study. Inclusion

criteria were; female gender, age (15-24 years), current student of the Salaga SHS, and prior registration at the school's academic office. Following recruitment of study participants, the research objectives and the significance of the study were explained extensively to the respondents and written informed consents and assents were obtained. The study questionnaires were distributed to the respondents and were allowed 30 minutes to respond to the questionnaires. After the time allotted for the data collection, the questionnaires were retrieved from the respondents for data analysis.

Data analysis

The primary data were analyzed using Statistical Package for Social Sciences (SPSS) version 25. We first conducted a descriptive analysis, tabulating the distribution of respondents' socio-demographic characteristics. The level of knowledge on EC was measured using seven closed-ended questions. Each question had a set of options which respondents were to choose from. Each correct answer was awarded a specific mark (ranging from 1-4) and a wrong answer, zero (0). The total score for every respondent was calculated as the summation of the individual scores. The minimum and maximum possible scores were zero and thirteen, respectively. Every individual's overall score was converted into a percentage and respondents who had 50.0% or more were graded as having "adequate knowledge" on EC and those who scored below 50.0% were graded as having "inadequate knowledge" on EC (Mishore *et al.*, 2019; Menene *et al.*, 2020; Mesfin, 2020). Attitude toward EC was evaluated using a 5-item Likert scale. There were seven questions, six positively worded and one negatively worded, with responses ranging from one to five. One represented strongly disagree, and five represented strongly agree. Three questions were reversed during the data analysis because they required disagreement to be awarded the highest score of five. The total score for every respondent was calculated as the summation of the individual scores. The minimum and maximum possible scores were

zero and thirty-five, respectively. Every respondent's overall score was converted into a percentage and those who had 50.0% or more were graded as having a "positive attitude" toward EC whereas those who scored below 50.0% were graded as having a "negative attitude" toward EC (Mishore *et al.*, 2019; Menene *et al.*, 2020; Mesfin, 2020). Utilization of EC was computed as the number of respondents who reported ever using EC after sexual intercourse to prevent pregnancy (Mishore *et al.*, 2019; Menene *et al.*, 2020; Mesfin, 2020). Reasons (barriers) for EC non-use among sexually active respondents were grouped into six themes; fear of stigma, cost of EC, non-availability of commodity, lack of knowledge about EC, fear of side effects of EC, and current use of other contraceptive methods. Because respondents could report more than one barrier, each response category was analyzed separately.

Ethical consideration

Ethical approval for the study was obtained from the Research and Ethics Review Committee of the College of Health, Yamfo, Ghana. Permission was also obtained from the management of the Salaga SHS to conduct the study in their institution. Written informed consent and assent were obtained from the respondents before the data collection. Participation was voluntary and the participants were informed that they could withdraw from the study at any stage of the data collection, if they wanted to, without any penalty or explanation. The study questionnaires were anonymized with unique codes and respondents were fully assured of their confidentiality and privacy.

3. RESULTS

Socio-demographic characteristics

Table 1 presents respondents' socio-demographic characteristics. Two hundred and ninety-five (295) reproductive-age women between 15 and 24 years of age participated in the study. Approximately, the same number of respondents was drawn from each year group. The majority of the respondents were between

15 and 19 years of age (63.7%). About one-third (33.2%) of the respondents were Gonjas by tribe who are natives of the East-Gonja Municipality. A larger proportion of the respondents were Muslims (66.8%). The

majority (61.0%) of the respondents were residents in their schools hostels, and more than half (58.0%) of the respondents reported being in an intimate relationship.

Table 1. Socio-demographic characteristics of the respondents

Variable	Frequency (N = 295)	Percent (%)
Age		
15-19 years	188	63.7
20-24 years	107	36.3
Tribe/ethnicity		
Gonja	98	33.2
Hausa	63	21.4
Dagomba	56	19.0
Akan	35	11.9
Others	43	14.6
Religion		
Islam	197	66.8
Christianity	98	33.2
Course year*		
SHS 1	98	33.2
SHS 2	98	33.2
SHS 3	99	33.6
Residence		
On school campus	180	61.0
Outside school campus	115	39.0
Relationship status		
Single	124	42.0
Intimate relationship	171	58.0

*SHS, Senior High School.

Level of knowledge on EC

Although more than half of the respondents indicated they had ever heard about EC, overall, the majority of them (62.0%) had inadequate knowledge on EC (Figure 1), according to our specified criteria.

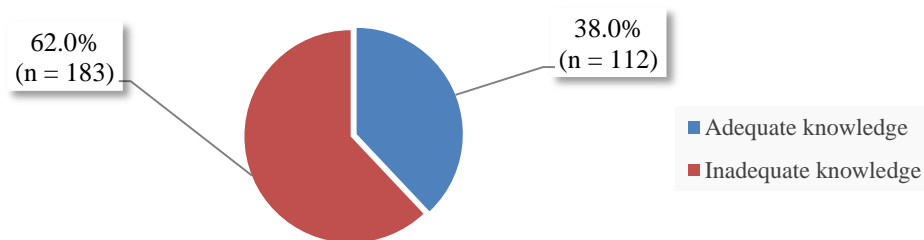


Fig 2. Respondents’ level of knowledge on EC, results from a descriptive analysis. N = 295.

Attitude towards EC

Also, based on our specified criteria, more than half (56.6%) of the 181 respondents who indicated had ever heard about EC showed a negative attitude toward this contraceptive method (Figure 2).

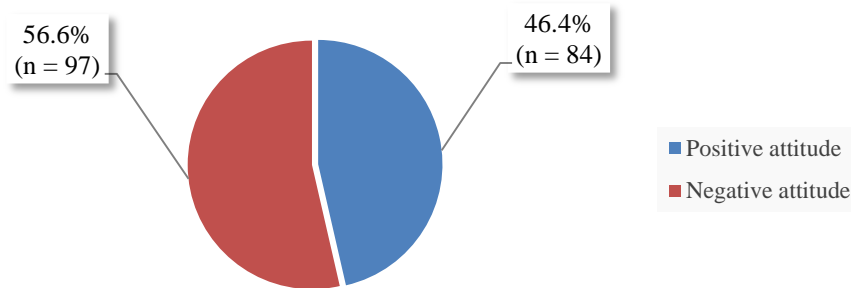


Fig 3. Study participants’ attitude towards EC, results from a descriptive analysis. N = 181.

Utilization of EC

As shown in Table 2 below, of the 295 respondents, 52.5% reported ever engaging in vaginal intercourse with a man and were, therefore, considered potential users of EC. However, only 48.0% of them reported ever-using EC. The main reason for using EC was

unprotected sexual intercourse (57.5%). The commonest method of EC reportedly used by the respondents was the oral contraceptive pill (OCP) (98.6%). Drug store/pharmacy was the main access point for the purchase of EC for most of the individuals (78.1%) who reported ever-using EC.

Table 2. Sexual behaviour and emergency contraceptive use among the respondents

Variable	Frequency (n)	Percent (%)
Ever had sexual intercourse*		
Yes	152	51.5
No	143	48.5
Ever used EC**		
Yes	73	48.0
No	79	52.0
Last time EC was used***		
0-1 month	38	52.1
2-6 months	25	34.2
> 6 months	10	13.7
The main reason for using EC***		
Unprotected sexual intercourse	42	57.5
Incorrect use of other contraceptive methods	18	24.7
Possible contraceptive failure	7	9.6
Sexual assault without contraceptive coverage	6	8.2
Time interval between the sexual act and EC use***		
0-24 hours	39	53.4
25-48 hours	17	23.3
49-72 hours	12	16.4
After 72 hours	5	6.8

Variable	Frequency (n)	Percent (%)
Method of EC used***		
Oral contraceptive pill	72	98.6
Intrauterine contraceptive device	1	1.4
Source of EC**		
Pharmacy shop/drug store	57	78.1
Community clinic/hospital	7	9.6
Others	9	12.3

*N = 295; **N = 152; ***N = 73. EC, emergency contraceptive.

Barriers to EC

Figure 3 presents reasons for EC non-use among respondents who reported ever engaging in vaginal intercourse with a man. The result indicates that several factors including fear of stigma (62.0%), non-availability of EC (59.5%), cost of EC (57.0%), lack of knowledge about EC

(54.4%), current use of other contraceptive methods (50.6%), and fear of side effects of EC (43.0%) were the reasons for EC non-use among persons who reported had ever engage in vaginal intercourse with a man.

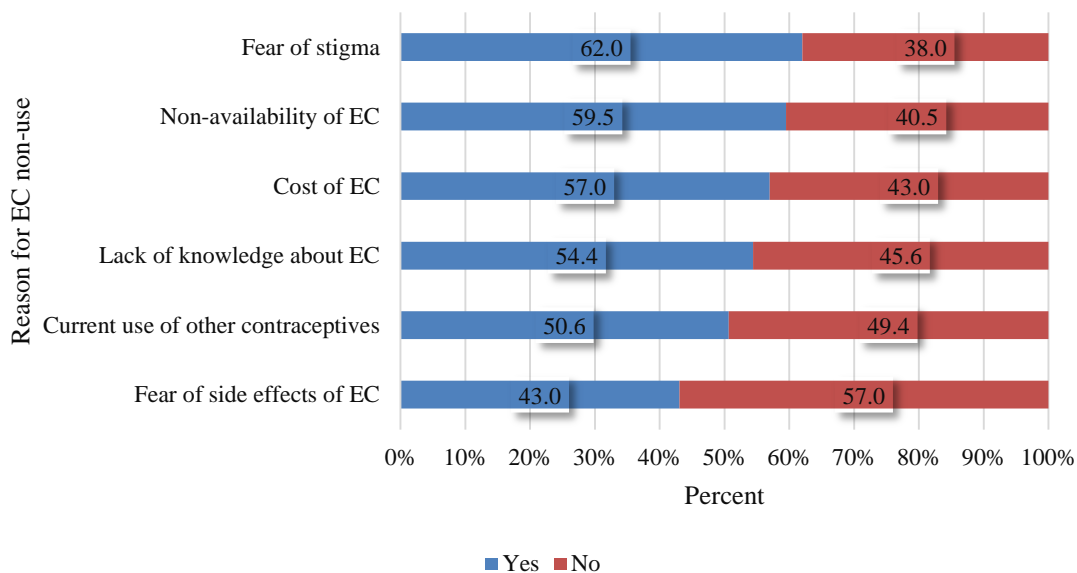


Fig 4. Reasons (barriers) for EC non-use among study participants who reported prior sexual intercourse with a man. N = 79. EC, emergency contraceptive.

4. DISCUSSION

In an institutionally representative sample of women aged 15-24 years, we observed a low level of knowledge on EC although the majority of them reported prior EC awareness. While this finding differs from those of single-site studies in southern Ghana (Yeboah, Appiah, & Kampitib, 2022), southern Ethiopia (Mesfin,

2020), and northern Tanzania (Dangat & Njau, 2013), the current finding mirrors observations of previous studies in low-resource settings of Nepal (Pradhan *et al.*, 2020), Nigeria (Babatunde *et al.*, 2016), and India (Relwani *et al.*, 2012) that measured female adolescents' knowledge on EC. Reproductive-age women from impoverished communities and low-resource settings often

have limited access to SRH services (including accurate information and education) than those from high-resource settings (Staveteig *et al.*, 2018), a disparity that may have resulted in the current observation. Adequate knowledge on EC among reproductive-age women enhances EC utilization (Deressa & Yang, 2021) and potentially reduces the number of unplanned and unwanted pregnancies (Staveteig *et al.*, 2018). Therefore, an important implication of the current finding is that unplanned pregnancies among the target population may continue to rise. The current finding, while preliminary, suggests the need for comprehensive SRH education in the East-Gonja Municipality.

Our finding also indicates that the majority of the reproductive-age women who reported prior awareness of EC showed a negative attitude toward EC. Although this result differs from observations made in some published studies (Abrha *et al.*, 2014; Thapa *et al.*, 2015; Semero *et al.*, 2015; Shakya & Ghimire, 2020; Mamuye *et al.*, 2021), there are similarities between the attitude expressed by respondents in this study and those reported in some previous research (Bajpai, 2015). In these studies (Abrha *et al.*, 2014; Thapa *et al.*, 2015; Semero *et al.*, 2015; Shakya & Ghimire, 2020; Mamuye *et al.*, 2021), the majority of the respondents had good or fair knowledge on EC, although none of the studies measured the association between the two variables. It may be the case, therefore, that the relatively poor attitude toward EC, expressed by the majority of respondents in our study, was due to the inadequate level of knowledge on EC. The poor knowledge and attitude towards EC meant that most sexually experienced women could be exposed to a myriad of SRH risks and associated consequences such as unintended and unplanned pregnancies, and therefore suggests a need for intervention.

Close to half of the reproductive-age women in our study reported using EC. This is encouraging, comparing our observation with those reported earlier in the literature (Semero *et al.*, 2015; Mamuye *et al.*, 2021). It is

somewhat surprising, especially for the fact that the majority of respondents in these studies (Abrha *et al.*, 2014; Thapa *et al.*, 2015; Semero *et al.*, 2015; Shakya & Ghimire, 2020; Mamuye *et al.*, 2021), demonstrated adequate knowledge and a positive attitude toward EC, yet, the use of EC was relatively low compared with our findings. This rather contradictory result may be explained, in part by the possibility that most of the respondents in the previous studies were correctly using other contraception methods at the time of the study and therefore did not need to use EC. However, similar disparities have been reported in other countries in SSA (Bamiwuye *et al.*, 2013; Ndayizigiye *et al.*, 2017; Ahinkorah *et al.*, 2020; Hellwig *et al.*, 2021), which may reflect inequity in access to SRH services and indicate a need for intervention. Our investigation further revealed that most of the sexually active women used EC because they had unprotected sexual intercourse, however, we did not explore the frequency of EC use. With the scope of the current study, it remains unclear whether providing comprehensive SRH counseling and unrestricted access to other modern contraceptive methods would improve their use and potentially limit the frequency of EC use.

Our research found five major reasons for the non-use of EC. These were fear of stigma, non-availability of EC, cost of EC, lack of knowledge on EC, and fear of side effects of EC. Concerns for user privacy and fear of stigma, non-availability of EC, cost of EC, lack of knowledge on EC, and fear of side effects of EC have been reported in the literature as barriers to EC among reproductive-age women (Milkowski *et al.*, 2021; Kwame *et al.*, 2022). In particular, fear of stigma may be heightened in settings where contraceptive users perceive or experience threats to client privacy and confidentiality (Milkowski *et al.*, 2021), where issues related to sex and reproductive health are hardly discussed in the open and often adolescents are deprived of the chance to benefit from public discussions with their parents and adult members of the same neighborhood on topics related to sexuality

and reproductive health (Planned Parenthood Association of Ghana [PPAG], 2016). Our study did not investigate the perceived need for or willingness to use other contraceptive methods. It may be the case, therefore, that, in the face of other barriers, the low EC use reflects differences in this potentially underlying factor.

5. CONCLUSION

Our study was able to unearth important contemporary issues related to EC among reproductive-age women in one of Ghana's highly impoverished and low-resource settings. The current findings, while preliminary, suggest the need for comprehensive SRH education and improved access to modern contraceptives for adolescents and youth in the East-Gonja Municipality. A major limitation of this study is that the study did not address the underlying drivers of the observed sexual behaviours and EC use. We also could not determine the sexual partner's role in EC use or non-use. Further research is, therefore, needed to examine the potential differences within and between groups (age, relationship status, and socio-economic groups), concentrating particularly on structural factors and existing inequities.

6. ACKNOWLEDGEMENT

The authors acknowledge the assistance and support given by the management of the Salaga SHS during the study. The cooperation and contribution of the respondents are also highly appreciated. The authors' contributions are as follows: R. Nketia co-conceived the initial idea and design of the study, carried out the data analysis, and wrote the initial draft of the manuscript; U. Shaibu co-conceived the initial idea and undertook all data collection and data entry; D. Atta-Nyarko supervised the study and was actively involved in the data analysis; A. G. Adobasom-Anane contributed to the design of the study and drafting of the first manuscript, Y. B. Nketiah contributed to the design of the study and review of the data analysis; and F. N. Arthur contributed to the drafting of the final

manuscript. All authors critically reviewed the manuscript and approved the final version of the manuscript.

7. REFERENCES

- Abrha, S., Zeratsion, F., Molla, F., Eticha, T., Assen, A, & Melkam, W. (2014). Assessment of knowledge, attitude and practice among regular female preparatory school students towards emergency contraceptives in Mekelle, Northern Ethiopia. *International Journal of Pharma Sciences and Research*, 5, 856-864.
- Ahinkorah, B. O., Seidu, A., Appiah, F., Budu, E., Adu, C., Boahemaa, Y., Aderoju, G., Adoboi, F. & Ajayi, A.I. (2020). Individual and community-level factors associated with modern contraceptive use among adolescent girls and young women in Mali: a mixed effects multilevel analysis of the 2018 Mali demographic and health survey. *Contraception and Reproductive Medicine*, 7, 1-12. <https://doi.org/10.1186/s40834-020-00132-7>
- Asamoah, B. O. & Agardh, A. (2018). Individual- and family-level determinants of risky sexual behavior among Swedish- and foreign-born young adults 18-30 years of age, residing in Skane, Sweden. *Archives of Sexual Behavior*, 47 (2), 517-528.
- Babatunde, O. A., Ibirongbe, D. O., Omede, O., Babatunde, O. O., Durowade, K. A., Salaudeen, A. G. & Akande, T. M. (2016). Knowledge and use of emergency contraception among students of public secondary schools in Ilorin, Nigeria. *Pan African Medical Journal*, 23, 1-7. <https://doi.org/10.11604/pamj.2016.23.74.8688>
- Bajpai, R. (2015). Emergency contraception: a study to assess knowledge, attitude and practice among female college students in Delhi. *National Journal of Community Medicine*, 4, 281-285.
- Bamiwuye, S. O., Wet, N. De. & Adedini, S.A. (2013). Linkages between autonomy, poverty and contraceptive use in two sub-Saharan African countries. *African Population Studies*, 27, 164-173. <https://doi.org/10.11564/27-2-438>
- Dangat, C. M., & Njau, B. (2013). Knowledge, attitude and practices on family planning services among adolescents in secondary schools in

- Hai District, northern Tanzania. *Tanzania Journal of Health Research*, 15, 1–8. <https://doi.org/10.4314/thrb.v15i1.3>
- Deressa, J. T., & Yang, L. (2021). Knowledge, attitude and practice of emergency contraceptive among undergraduate female college students: a cross-sectional study. *Austin Journal of Obstetrics and Gynecology*, 8, 1182.
- Duran, C. P., Dabalen, A., Narayan, A., Lucas, A. & Menéndez, C. (2016). Inequalities in women's and girls' health opportunities and outcomes: A report from sub-Saharan Africa.
- East Gonja Municipal Health Directorate. (2022). East Gonja sub municipalities & communities. Salaga.
- Ghana Health Service. (2016). *Adolescent health service policy and strategy (2016-2020)*. Accra, Ghana.
- Ghana Statistical Service. (2021). *Ghana 2021 Population and Housing Census. General Report (V. 3)*. Accra
- Hellwig, F., Coll, C. V. N., Blumenberg, C., Ewerling, F., Kabiru, C. W. & Barros, A. J. D. (2021). Assessing wealth-related inequalities in demand for family planning satisfied in 43 African countries. *Front. Glob. Womens Health*, 2, 674227. <https://doi.org/10.3389/fgwh.2021.674227>
- Hussain, R., & Kavanaugh, M. L. (2021). Changes in use of emergency contraceptive pills in the United States from 2008 to 2015. *Contraception: X*, 3, 100065. <https://doi.org/10.1016/j.conx.2021.100065>
- Jko, O., Pavlova, M. & Groot, W. (2020). Socioeconomic inequalities in reproductive health care services across Sub-Saharan Africa. A systematic review and meta-analysis. *Sexual & Reproductive Healthcare*, 25, 100536. <https://doi.org/10.1016/j.srhc.2020.100536>
- Kaba, A.J. (2020). Explaining Africa's rapid population growth, 1950 to 2020: trends, factors, implications, and recommendation. *Sociology Mind*, 10, 226–268. <https://doi.org/10.4236/sm.2020.104015>
- Kwame, K. A., Bain, L. E., Manu, E. & Tarkang, E. E. (2022). Use and awareness of emergency contraceptives among women of reproductive age in sub-Saharan Africa: a scoping review. *Contraception and Reproductive Medicine*, 7, 1–14. <https://doi.org/10.1186/s40834-022-00167-y>
- Lartey, N. L. (2021). Teenage pregnancies in Ghana hit 555, 575 in five years. Citinews. <https://citinewsroom.com/2021/06/teenage-pregnancies-in-ghana-hit-555575-in-five-years/amp/>
- Laari, P. (2021, June). Ghana National Household Registry (GNHR) and Data Dissemination. Damango, Savannah region.
- Mamuye, S. A., Wudineh, K. G., Belay, A. N., & Gizachew, K. D. (2021). Assessment of knowledge, attitudes, and practices regarding emergency-contraception methods among female Dangila Hidase high school students, Northwest Ethiopia, 2019. *Open Access Journal of Contraception*, 12, 1–5. <https://doi.org/10.2147/OAJC.S288029>
- Menene, A., Getachew, A., Kediro, A., & Gutema, B. (2020). Assessment of knowledge, attitude and practice toward emergency contraceptive among female students at Unity University, Adama Town, Oromia Regional State, Ethiopia. *International Journal of Clinical and Experimental Medical Sciences*, 6, 96–103. <https://doi.org/10.11648/j.ijcems.20200605.13>
- Mesfin, D. (2020). Emergency contraceptive knowledge, utilization and associated factors among secondary school students in Wolkite town, southern Ethiopia, cross sectional study. *Contraception and Reproductive Medicine*, 5, 1–10. <https://doi.org/10.1186/s40834-020-00119-4>
- Milkowski, C. M., Ziller, E. C., & Ahrens, K. A. (2021). Rural-urban residence and emergency contraception use, access, and counseling in the United States, 2006-2017. *Contraception: X*, 3, 100061. <https://doi.org/10.1016/j.conx.2021.100061>
- Ministry of Finance - Ghana. *2021 PBB Estimates for East Gonja Municipal*. Accra.
- Mishore, K. M., Woldemariam, A. D. & Huluka, S. A. (2019). Emergency contraceptives: Knowledge and practice towards its use among Ethiopian female college graduating students. *International Journal of Reproductive Medicine*, 2019, 9397876. <https://doi.org/10.1155/2019/9397876>
- Ndayizigiye, M., Fawzi, M. C. S., Lively, C. T. & Ware, N. C. (2017). Understanding low uptake of

- contraceptives in resource-limited settings: a mixed-methods study in rural Burundi. *BMC Health Services Research*, 17, 1–12. <https://doi.org/10.1186/s12913-017-2144-0>
- Planned Parenthood Association of Ghana [PPAG]. (2016). *Five-year strategic plan. Planned Parenthood Association of Ghana*. Accra, Ghana.
- Pradhan, M., Pokharel, B. & Karki, A. (2020). Knowledge and practice regarding emergency contraception among higher secondary students of selected Government schools of Godawari Municipality. *International Journal of Health Sciences and Research*, 10, 95–102.
- Relwani, N., Saoji, A., Kasturwar, N. B., Nayse, J., Junaid, M., & Dhattrak, P. (2012). Emergency contraception: exploring the knowledge, attitude and practices of engineering college girls in Nagpur District of Central India. *National Journal of Community Medicine*, 3, 3–8.
- Seglah, P. A., Wang, Y., Wang, H., Apelike, K., Neglo, W., Gao, C., & Bi, Y. (2022). Energy potential and sustainability of straw resources in three regions of Ghana. *Sustainability*, 14, 1–22. <https://doi.org/10.3390/su14031434>
- Semero, S., Town, J., Tesfa, A., Bizuneh, A. D., Tesfaye, T., Gebru, A. A., Ayene, Y. Y., & Tamene, B. A. (2015). Assessment of knowledge, attitude and practice towards emergency contraceptive methods among female West Ethiopia. *Science Journal of Public Health*, 3, 478–486. <https://doi.org/10.11648/j.sjph.20150304.15>
- Shakya, V., & Ghimire, N. (2020). Knowledge and attitude on emergency contraception among adolescent students of an urban school. *Journal of Patan Academy of Health Sciences*, 7, 146–155. <https://doi.org/10.3126/jpahs.v7i1.28892>
- Staveteig, S., Gebreselassie, T., & Kampa, K. T. (2018). Absolute poverty, fertility preferences, and family planning use in FP2020 focus countries. (DHS comparative reports No. 48).
- Thapa, S., Lopchan, M. & Mehta, R. K. (2015). Knowledge and attitude regarding emergency contraception among higher secondary students. *IOSR Journal of Nursing and Health Science*, 4, 46–49. <https://doi.org/10.9790/1959-04334649>
- United Nations Population Fund. (2010). *How Universal is Access to Reproductive Health?* New York, United States.
- Wilmoth, J., Menozzi, C., & Bassarsky, L. (2022). *Why population growth matters for sustainable development*. New York, United States: UNESCO.
- Yamane, T. (1967). *Statistics; an introductory analysis (2nd ed.)*. New York: Harper & Row.
- Yeboah, D. S., Appiah, M. A. & Kampitib, G. B. (2022). Factors influencing the use of emergency contraceptives among reproductive age women in the Kwadaso Municipality, Ghana. *PLoS ONE*, 17, e0264619. <https://doi.org/10.1371/journal.pone.0264619>