

ORIGINAL RESEARCH ARTICLE

Knowledge and utilisation of family planning services among tertiary students in Northern Ghana: The case of College of Nursing and Midwifery, Nalerigu

DOI: 10.29063/ajrh2024/v28i5.7

Zaratu S. Sulemana^{1,2}, Sinalo Gqunu^{1,3}, Francis D.N. Abobo^{1,4}, Hilda A. Halm⁵, Nat Obour-Awuku^{1,6}, Ransford O. Kumi^{1,7}, Bright Y. Amoore^{1,8}, Richard K.D. Ephraim⁹, Evans Duah^{1,10*} and Clement Agoni^{1,11}

Public Health Research Consortium-DLC, Cape Coast, Ghana¹; College of Nursing and Midwifery, Nalerigu, Ghana²; Genesis Analytics, Johannesburg, South Africa³; EPI, World Health Organization, Lesotho⁴; Community 22 Polyclinic, Tema, Ghana⁵; Laboratory Department, Upper West Regional Hospital, Ghana⁶; Department of Industrial and Health Sciences, Faculty of Applied Sciences, Takoradi Technical University, Main Campus, Takoradi, Ghana⁷; Department of Community Health and Preventive Medicine, School of Medicine, University for Development Studies, Tamale, Ghana⁸; Department of Medical Laboratory Science, School of Allied Health Sciences, College of Health and Allied Sciences, University of Cape Coast, Ghana⁹; Faculty of Health Sciences, School of Health Systems and Public Health, University of Pretoria, Pretoria 0002, South Africa¹⁰; School of Health Sciences, University of Kwazulu-Natal, Westville Campus, Durban 4001, South Africa¹¹

*For Correspondence: Email: evans.duah@tuks.co.za; Phone: +233209067278

Abstract

Though tertiary students studying health-related programs are assumed knowledgeable about family planning, this does not always translate to increased use of family planning services. In a cross-sectional survey, this study assessed 411 nursing, midwifery and allied health students' knowledge of family planning, contraceptive use, perceptions, and factors affecting the utilisation of family planning services. Each student completed a 24-itemised questionnaire in a Computer-Assisted Personal Interviewing Survey. The data was analysed with Stata /IC version 16. Statistical significance was set at $p < 0.05$. Overall knowledge of family planning was 99.7%, commonly gained in school (51.8%), followed by clinics and hospitals (41.4%). Only 21.7% of the students used family planning services. Menstrual cramps (57.9%), infertility (33.1%), and weight gain (32.5%) were the commonly perceived side effects of contraceptive use. The high proximity of participants to family planning service providers and lack of community, family, and partner acceptance of modern contraceptives were associated with underutilisation. Despite the high level of knowledge of family planning, the student's utilisation of family planning services was poor. To boost family planning service uptake among tertiary health students, it is essential to tackle barriers related to community, family, and partner acceptance. This can be achieved through educational programs that involve men in family planning discussions and by enhancing service accessibility. (*Afr J Reprod Health* 2024; 28 [5]: 55-66).

Keywords: Family planning, knowledge, contraceptive use, rural, tertiary students, Ghana

Résumé

Même si les étudiants du supérieur qui étudient dans des programmes liés à la santé sont censés connaître la planification familiale, cela ne se traduit pas toujours par une utilisation accrue des services de planification familiale. Dans le cadre d'une enquête transversale, cette étude a évalué les connaissances de 411 étudiants en soins infirmiers, obstétricaux et paramédicaux en matière de planification familiale, d'utilisation des contraceptifs, de perceptions et de facteurs affectant l'utilisation des services de planification familiale. Chaque étudiant a rempli un questionnaire en 24 points dans le cadre d'une enquête par entretien personnel assisté par ordinateur. Les données ont été analysées avec Stata/IC version 16. La signification statistique a été fixée à $p < 0,05$. La connaissance globale de la planification familiale était de 99,7 %, généralement acquise à l'école (51,8 %), suivie par les cliniques et les hôpitaux (41,4 %). Seulement 21,7% des étudiants ont utilisé les services de planification familiale. Les crampes menstruelles (57,9 %), l'infertilité (33,1 %) et la prise de poids (32,5 %) étaient les effets secondaires couramment perçus de l'utilisation de contraceptifs. La grande proximité des participants avec les prestataires de services de planification familiale et le manque d'acceptation des contraceptifs modernes par la communauté, la famille et les partenaires étaient associés à la sous-utilisation. Malgré le niveau élevé de connaissances en matière de planification familiale, l'utilisation des services de planification familiale

par les étudiants était faible. Pour stimuler le recours aux services de planification familiale parmi les étudiants de l'enseignement supérieur en santé, il est essentiel de s'attaquer aux obstacles liés à l'acceptation par la communauté, la famille et les partenaires. Cet objectif peut être atteint grâce à des programmes éducatifs qui impliquent les hommes dans les discussions sur la planification familiale et en améliorant l'accessibilité des services. (*Afr J Reprod Health* 2024; 28 [5]: 55-66).

Mots-clés: Planification familiale, connaissances, utilisation des contraceptifs, milieu rural, étudiants du supérieur, Ghana

Introduction

The core principle for family planning is to voluntarily attain the desired number of children, to space births, and to attain the family size of interest¹. As a crucial pillar of safe motherhood, family planning has reduced the rates of unintended pregnancies, unsafe abortions, and vertical transmission of HIV². Some 85% of women who stopped contraception for various reasons in 36 countries had unintended pregnancies in the first year³. About 80 million unplanned pregnancies are documented annually, of which about 46 million are unwanted and terminated⁴. However, about 19 million end in unsafe abortion⁴.

Globally, 1.1 billion women of reproductive age (15-49 years) have family planning needs, of which about 270 million are unmet². These unmet needs are influenced by varying grades of geographical, political, socio-cultural, religious, and psychosocial factors. These include limited physical access to contraception services, lack of adolescent-friendly reproductive health service clinics, limited choice of methods, the fear of side effects, religious and cultural oppositions, and gender-based barriers¹. In deeply entrenched cultural settings, particularly evident in some African communities, men often hold significant influence over women's reproductive health, including their access to reproductive health services^{5,6}. This dynamic can worsen gender disparities and perpetuate harmful practices like domestic violence, child marriage, teenage pregnancy, female genital mutilation, and unwanted pregnancy^{7,8}. However, when men actively participate in family planning conversations and decisions, they can play a vital role in mitigating these obstacles by offering support, facilitating resource access, and contributing to collaborative decision-making processes⁹. Their engagement is essential for overcoming barriers and improving reproductive health outcomes for women, thus addressing unmet needs in the community.

The fertility rate of Sub-Saharan Africa keeps declining much slower than the rest of the world. While the global fertility rate declined from 3.2 to 2.5 births per woman between 1990 and 2019, Sub-Saharan Africa's fertility rate declined from 6.3 to 4.6 births per woman¹⁰. This low decline in fertility rate could explain the high maternal mortality rates, unsafe abortions, and poverty in Sub-Saharan Africa. About 95% of maternal mortality occurs in low-and middle-income countries, including Sub-Saharan Africa¹¹. Also, 1 in 270 women die from unsafe abortions in Sub-Saharan Africa⁴. In Ghana, 23.2% of all women and 29.8% of married women used modern contraceptives as of 2020¹². There are unmet contraception and family planning needs of 31.9% of married women¹² and 30% of all women of reproductive age¹³. The factors influencing these unmet needs may not differ from the global perspectives, hence the need to investigate.

Health promotion practices including education and information dissemination play critical roles in meeting these unmet needs. A series of educational programs are rolled out to sensitise targeted Ghanaian communities on the need for family planning¹². However, these programs typically target the informal populations within indigenous communities. Tertiary students in nursing and midwifery colleges are rightly classified as an educated and well-informed class of to-be professionals. However, they are frequently neglected on issues about their health particularly reproductive health since they are perceived to be health-inclined. Moreover, the targeted tertiary training institution in this study is located in a community with a strong cultural heritage and deeply ingrained traditional practices. The purpose of this cross-sectional study was to assess the knowledge of family planning, contraceptive use, perceptions and factors affecting the utilisation of family planning services among students of the College of Nursing and Midwifery, Nalerigu. This study aligns with Sustainable Development Goal 3 (SDG 3) on ensuring equitable healthy lives and

promoting well-being for all at all ages, particularly target 3.7, which aims to ensure universal access to sexual and reproductive health-care services, including family planning, by 2030¹⁴.

Methods

Study design and study site

This cross-sectional study was conducted in the College of Nursing and Midwifery, Nalerigu, Ghana, between August 2022 and June 2023. This training institution in Nalerigu in the Northeast Region of Ghana is mandated to train nurses, midwives, and allied health professionals to meet the workforce needs of the Northern belt and Ghana at large. Moreover, the region is known for its vibrant cultural heritage, characterized by a diverse array of traditions, customs, and practices.

Study population

The study comprised solely of students from the training institution who provided their consent to participate. This included students from three departments: Nursing, Midwifery, and Allied Health, spanning across all academic years (1st to 3rd year). Eligible participants were aged 18 years and above, representing both genders. However, it is noteworthy that the training institution is predominantly composed of women, given the limited enrollment of men, particularly in the nursing program, and no enrollment in the midwifery program in Ghana. Teaching and non-teaching staff of the institution were ineligible to participate in the study.

Survey instrument and data collection procedures

A 24-itemised questionnaire (provided as supplemental data) was deployed in a Computer-Assisted Personal Interviewing (CAPI) Survey. This questionnaire was adapted from the validated Demographic & Health Survey (DHS), Woman's Questionnaire Topics (WQT) and Man's Questionnaire Topics (MQT)¹⁵ and the Challenge Initiative's media-stakeholder questionnaire for

assessing the knowledge, attitude, and practices on family planning¹⁶. The questionnaire consisted of questions on socio-demographic information, knowledge on family planning services, attitudes toward using family planning services, and barriers to the available family planning methods. We approached five hundred and twelve (512) students with the CAPI, of which 411 responded successfully. The reported non-response rate was 19.7%. The convenience sampling technique permitted only available and consenting participants to participate in the study.

Sample size determination

The minimum required sample size for the study was calculated with the Yamane sample size formula¹⁷. The minimum sample size required for the study was 379.

$$n \geq \frac{N}{1+Ne^2}$$

Where:

n = sample size required.

N= The student population= 7000

e=Margin of error (5% =0.05).

$$n \geq \frac{7000}{1+7000(0.05)^2} \geq 379$$

Study variables

Outcome variable

Knowledge of family planning and contraceptive use were the outcome variables. We defined family planning as all measures employed by the students to voluntarily attain the desired number of children, to space births, and to attain the family size of interest. However, contraceptives were defined as all methods used to prevent conception or pregnancy.

Knowledge of family planning was assessed with the student's cumulative score based on their binary responses of "True" and "False" to the following statements: Family planning helps to plan the number of children I wish to have, Family planning helps to decide when to get pregnant, Family planning helps to space the number of children I wish to have, and contraceptives have side effects. The students with a cumulative score

of $\geq 77\%$ were considered to have good knowledge¹⁸.

Similarly, two (2) independent and close-ended questions were asked to assess the students' contraceptive use: "Have you ever used contraception?" and "Do you currently use contraception?".

However, we used the students' current contraceptive use in the logistic regression models developed in the study.

Independent variables

The independent variables were the students' socio-demographic information: Age (years), sex in binary (Male/Female), year of study, program of study, marital status, number of children, and religion.

Statistical analysis

The data was extracted into Microsoft Excel spreadsheets (Microsoft Office version 2016)¹⁹, cleaned, and coded for statistical analysis. Stata version 16.0 software was used for the statistical analysis²⁰. Descriptive statistics were run on the data to describe student socio-demographic characteristics, knowledge, and practices. Multinomial logistic regression was performed to predict the factors influencing students' underutilisation of contraceptives with the outcome variable coded as 1(yes, success) and 0(no, failure). Both crude and adjusted models were used. We adjusted for age, sex, class, program of study, marital status, number of children and religion. Statistical significance was considered at $p < 0.05$, at a 95% confidence level. The results were presented in tables and graphs.

Institutional review board

This study received full approval from the Committee on Human Research, Publications, and Ethics at the Kwame Nkrumah University of Science and Technology (CHRPE/AP/526/22). Permission was received from the College of Nursing and Midwifery, Nalerigu, to conduct the study at the training institution. The students signed

written informed consent before participating in the study.

Results

Socio-demographic information of the students

A total of 411 students participated in the study (Table 1). Among them, more than half (59.4%) were between 18 and 24 years old, and the majority (97.1%) were females. About two-fifths of the students were in their first year of study (40.2%), and the most common programs were midwifery (38.7%) and nursing (36.0%). Most students were single (81.8%) and had no children (84.7%). Additionally, over one-third of the students (38.7%) reported to be Muslims.

Students' knowledge of family planning

Of the 411 students that participated in the study, 354 of them (86.1%) reported having ever heard of family planning (Figure 1A); disproportionately, this was more common among female students ($n=343$, 96.9%). When asked how they had gained knowledge on family planning (Figure 1B), three-fifths ($n=213$, 60.2%) of students reported that it was through school, followed by clinics or hospitals ($n=170$, 48.0%). Among the students who had ever heard of family planning (Figure 1C), the majority ($n=353$, 99.7%) had good knowledge of family planning, with an average knowledge score of 94.7%.

Knowledge of contraceptives and utilisation

Close to two-thirds of the survey students ($n=260$, 63.3%) indicated they had used contraception at some point (Figure 2A). However, at the time of the survey, only about a fifth of the students ($n=89$, 21.7%) reported currently using contraception. Among students who reported knowing family planning ($n=345$, 86.1%), condoms ($n=206$, 59.7%) and pills ($n=201$, 58.3%) were the most well-known contraceptive methods (Figure 2B). Among those

Table 1: Socio-demographic characteristics of students enrolled at the College of Nursing and Midwifery, Nalerigu, Ghana, from August 2022 to June 2023

Socio-demographic characteristics	n(%) N=411
Age (years)	
18-24	244(59.4)
25-30	152(36.9)
31-36	15(3.7)
Sex	
Male	12(2.9)
Female	399(97.1)
Year of Study	
1 st year	165(40.2)
2 nd year	94(22.9)
3 rd year	152(36.9)
Program of study	
Nursing	148(36.0)
Midwifery	159(38.7)
Allied Health	104(25.3)
Marital status	
Single	336(81.8)
Married	64(15.6)
Cohabiting	9(2.2)
Separated/ Divorced	2(0.4)
Number of children	
None	348(84.7)
One	40(9.7)
Two	16(3.9)
More than two	7(1.7)
Religion	
Catholic Christian	69(16.8)
Charismatic Christian (Pentecostal, One-man church)	116(28.2)
Protestant Christian (Methodist, Presbyterian, Anglican)	65(15.8)
Muslim	159(38.7)
None	2(0.5)

who reported currently using contraception (n=89, 21.7%), over half use pills (n=48, 53.9%).

Students' perceptions and reasons for not using contraceptives

Figure 3A shows that the majority of students have the perception that the use of contraceptives causes

menstrual cramps (n=205, 57.9%), followed by infertility (n=117, 33.1%) and weight gain (n=115, 32.5%). Figure 3B shows that the majority (n=171, 53.1%) of the students do not use contraceptives due to fear of infertility associated with modern contraceptives.

Factors that influence the students' likelihood of underutilising contraception

Age, number of children, access to family planning service providers, community acceptance, family acceptance, and partner acceptance significantly influenced the underutilisation of contraceptives by the students (Table 2). The likelihood of underutilising contraceptives increased with age, adjusting for all other variables in Table 2. Specifically, students between the ages of 25 and 30 were twice as likely [AOR(95%CI), pval: 2.04(1.14-3.65), 0.016] not to utilise contraceptives compared to those aged 18 to 24. Also, students with more than two children were twice as likely [AOR(95%CI), pval: 2.27(1.02-5.04), 0.044] not to utilise contraceptives compared to those with no children. Similarly, students aged 31-36 years old were five times more likely to refuse contraceptives [AOR(95%CI), pval: 5.36(1.05-27.47), 0.044]. Controlling for all other variables in Table 2, the odds of refusing family planning services increased with access to family planning service providers. Students who travelled between 1 and 5km to access family planning services were three times more likely [AOR(95%CI), pval: 3.09(1.36-7.00), 0.007] not to utilise family planning services compared with their colleagues who only travelled less than ½km. However, this was four times more likely for students who had to travel more than 5km [AOR(95%CI), pval: 4.04(1.38-11.81), 0.011]. Students whose families did not accept family planning were twice as likely to refuse the methods [AOR(95%CI), pval: 2.33(1.19-4.56), 0.014]. Similarly, those whose partners did not accept family planning were five times more likely to refuse it [AOR(95%CI), pval: 5.42(2.64-11.11), <0.001]. The odds of refusing contraceptives did not significantly differ by sex, marital status, year

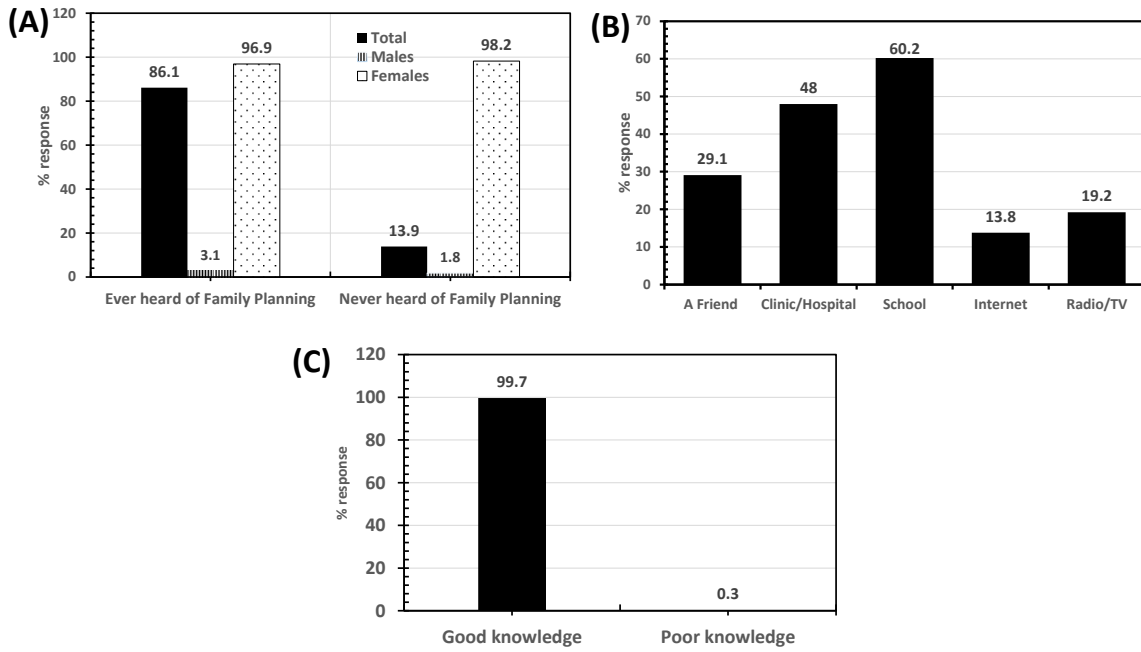


Figure 1: Students' knowledge of family planning (A) Ever heard of family planning (B) Source of knowledge (C) Overall knowledge of family planning

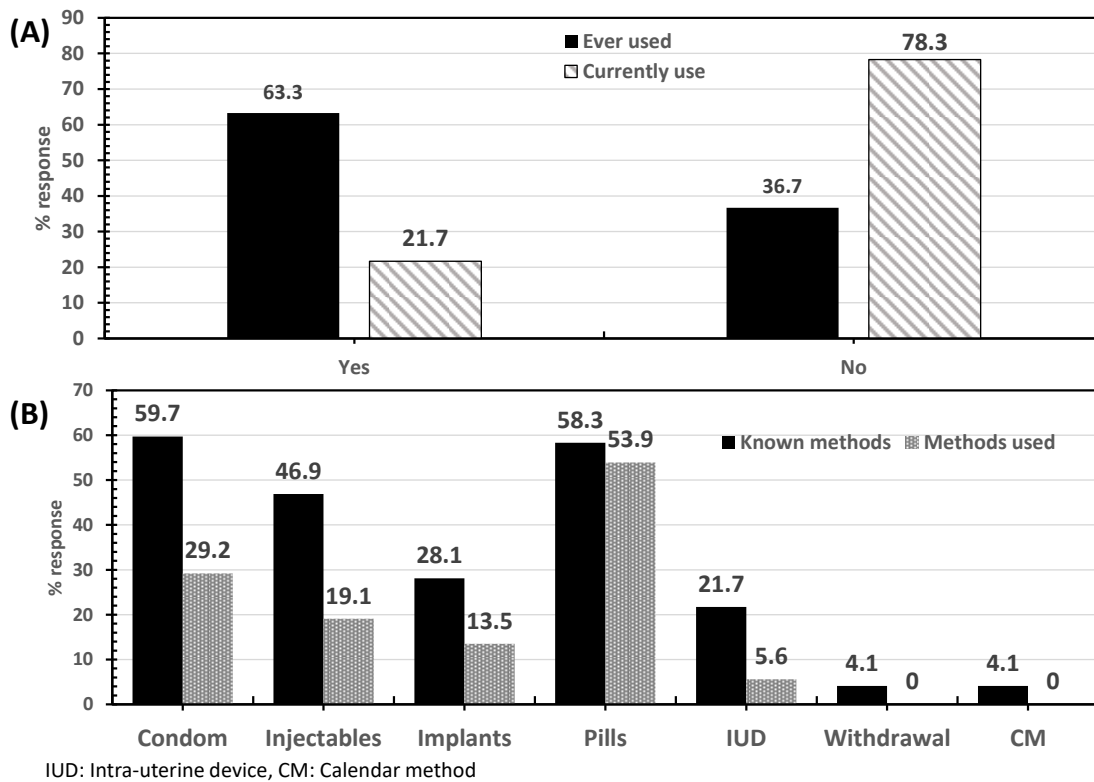


Figure 2: Knowledge of contraceptives and utilisation (A) Proportion of students who have ever used family planning methods versus those who currently use (B) Students' knowledge on contraceptives and utilization

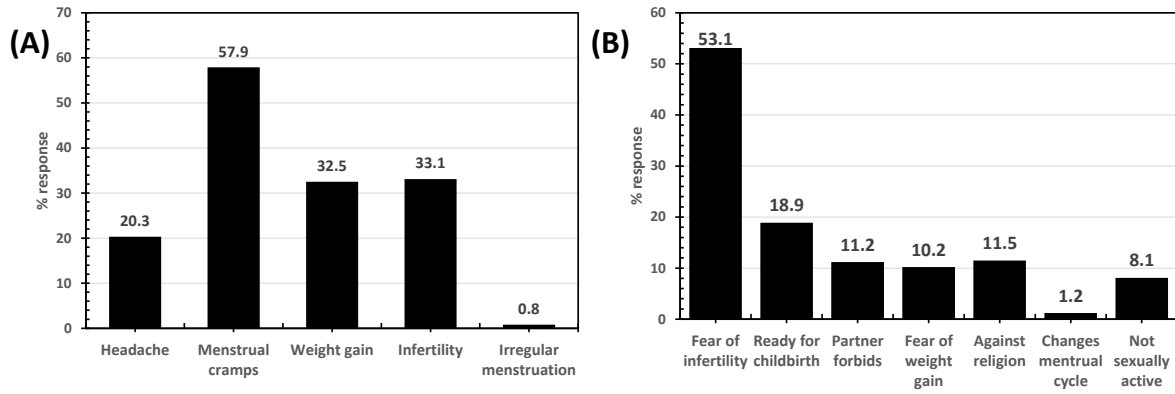


Figure 3: Perceptions of contraception and utilisation among students (A) Perceived side effects of contraceptive use (B) Reasons for underutilising contraceptives

Table 2: Factors affecting the likelihood of students underutilising contraceptives

Variable	Crude OR(95% CI)	P-value	Adjusted AOR(95% CI)	P-value
Age (years)				
18-24	1		1	
25-30	1.51(0.91-2.51)	0.112	2.04(1.14-3.65)	0.016*
31-36	2.12(0.46-9.66)	0.332	5.36(1.05-27.47)	0.044*
Sex				
Male	1		1	
Female	1.21(0.32-4.58)	0.776	1.40(0.36-5.53)	0.628
Marital status				
Single	1		1	
Married	0.57(0.31-1.04)	0.065	0.53(0.25-1.14)	0.105
Cohabiting	0.24(0.06-0.98)	0.048*	0.27(0.06-1.14)	0.074
Separated/ Divorced	0.48(0.04-5.37)	0.551	0.33(0.03-4.35)	0.401
Number of children				
None	1		1	
One	1.06(0.30-3.69)	0.928	0.85(0.22-3.28)	0.818
Two	1.20(0.21-7.05)	0.837	0.62(0.09-4.15)	0.618
More than two	1.95(0.96-3.97)	0.067	2.27(1.02-5.04)	0.044*
Year of Study				
1 st year	1		1	
2 nd year	1.04(0.57-1.91)	0.899	0.79(0.41-1.53)	0.479
3 rd year	1.22(0.71-2.09)	0.476	1.34(0.72-2.49)	0.358
Program of study				
Nursing	1		1	
Midwifery	0.65(0.37-1.14)	0.130	0.59(0.34-1.07)	0.084
Allied Health	0.61(0.33-1.13)	0.117	0.57(0.30-1.09)	0.092
Religion				
Catholic Christian	1		1	
Charismatic Christian (Pentecostal, One-man church)	1.54(0.76-3.09)	0.228	1.39(0.67-2.85)	0.376
Protestant Christian (Methodist, Presbyterian, Anglican)	1.68(0.74-3.81)	0.216	1.56(0.67-3.65)	0.302
Muslim	1.35(0.70-2.57)	0.368	1.27(0.64-2.51)	0.497
Perceived side effects				

Yes	1.11(0.65-1.91)	0.706	1.14(0.65-1.98)	0.656
No	1		1	
Distance from the nearest family planning service provider				
Less than ½km	1		1	
Between ½ and 1km	1.60(0.83-3.08)	0.160	1.71(0.86-3.41)	0.128
Between 1 and 5km	2.73(1.27-5.89)	0.010*	3.09(1.36-7.00)	0.007*
More than 5km	3.05(1.08-8.59)	0.035*	4.04(1.38-11.81)	0.011*
Community acceptance				
Yes	1		1	
No	0.73(0.27-1.97)	0.535	0.74(0.27-2.06)	0.570
I can't tell	2.22(1.12-4.40)	0.022*	2.43(1.19-4.93)	0.014*
Family acceptance				
Yes	1		1	
No	2.42(1.26-4.65)	0.008*	2.33(1.19-4.56)	0.014*
I can't tell	2.02(1.04-3.90)	0.037*	1.98(1.00-3.95)	0.050*
Partner acceptance				
Yes	1		1	
No	5.36(2.67-10.75)	<0.001*	5.42(2.64-11.11)	<0.001*
I can't tell	4.86(1.64-14.10)	0.004*	4.77(1.57-14.47)	0.006*

of study, the program of study, religion and perceived side effects.

Discussion

Safe and effective family planning methods have proven to offer freedom for populations to consciously plan their sexual and reproductive lives, while others, such as barrier methods, have immensely contributed to controlling sexually transmitted infections (STIs)².

Overall, a significant proportion (86.1%) of the students were aware of family planning, aligning with findings from a related study among tertiary students at the University of Ghana, where 94% of students were familiar with family planning²¹. However, our reported proportion demonstrates a slightly lower level of awareness. This variation may be attributed to the distinct socio-cultural characteristics of the student populations and communities in which the two tertiary institutions are located. The University of Ghana holds the distinction of being the oldest and most prestigious university in Ghana. Nestled within Accra, the nation's capital and seat of government, this esteemed institution is located in Legon, an urban erudite community in the Ayawaso West Municipality. However, the College of Nursing and Midwifery is situated in Nalerigu, a community with a rich cultural heritage and

entrenched in its traditional practices, making it less exposed to contemporary ideas like family planning. Another study conducted among tertiary students in the middle belt of Ghana showed that 79.6% were aware of family planning and could provide some information in that regard²². Jurisdictional and socio-cultural disparities and inequitable access to information may have influenced the lower proportion recorded in this study.

This study showed that 99.7% of the students who had ever heard of family planning had good knowledge. This result agrees with the findings of a study conducted among college undergraduate students who are adequately exposed to information on family planning through both traditional and technological sources in Sikkim, India²³. However, the finding observed in this study was notably higher compared to previous studies conducted in Northwest Ethiopia (42.3%)¹⁸, four other emerging regions in Ethiopia (43.4%)²⁴ and in the Hai district of Northern Tanzania (67.4%)²⁵. These disparities could be due to differences in the study populations across the various studies. The two studies in Ethiopia targeted women of reproductive age, irrespective of educational background. In contrast, our study focused on nursing, midwifery, and allied health students who are more exposed to information, particularly through their facilitators in a classroom setting. On

the contrary, the study in Tanzania was conducted among adolescents in secondary schools, who may be less exposed to information compared to our study population.

The findings that students commonly gained knowledge on family planning through school (60.2%) and health facilities (48%) contradicted a study conducted in Nigeria, which showed that friends (41.7%) and relatives (33.3%) were the most common sources of family planning information among undergraduate tertiary students²⁶. Another study conducted in the middle belt of Ghana, similar to our research, showed that health facilities (28.8%) were among the primary sources of knowledge on family planning among tertiary students²². The high use was attributed to the students' knowledge of family planning methods. In the current study, though the majority of the students had high knowledge of condoms, the majority preferred pills. This finding aligns with a similar study among tertiary students in Ethiopia²⁷. However, it contradicts with a nationally representative survey in Ghana, where condoms (22%) were preferred to other forms of contraceptives²⁸.

The findings of this study suggest that high exposure to information on family planning does not necessarily reflect high utilisation of family planning methods, as only 21.7% of students in this study used family planning services. Despite their educational status and the generally young student population, the majority of students perceived the use of contraceptives to commonly cause menstrual cramps, followed by infertility and weight gain tendencies. These findings are consistent with similar studies conducted in Kwale County, Kenya²⁹, southeast Nigeria³⁰, and South Africa³¹. The research conducted in Kenya identified fear of cancer (59.4%), fear of giving birth to deformed babies (51.2%), fear of infertility (59.4%), and weight gain (68.6%) as the top reasons for not using contraceptives among the contact group²⁹. Also, a qualitative study from south-east Nigeria reported that some adolescents perceived that condoms reduce sexual pleasure and hence prefer to use misconceived methods such as hard drugs and laxatives to avoid pregnancy³⁰. A qualitative study in South Africa also outlined misconceptions such as fear of weight gain and infertility as the most

common reasons for non-contraceptive use among young adults³¹. While these misconceptions and myths may not be new, it is alarming when these findings are reported among an educated population, particularly health students receiving training to become health professionals.

The current study identified increased age, proximity to health facilities, and lack of community, family and partner acceptance of family planning as barriers to contraceptive use. These findings align with various studies conducted among underserved and hard-to-reach communities in low and middle-income countries, including sub-Saharan Africa in general³², Zambia³³, Kenya³⁴, Conakry, Guinea³⁵ and Ghana²¹. Generally, a systematic review conducted in sub-Saharan Africa established societal and cultural pressures on women, financial instability and lack of access to services as the common barriers to the use of family planning methods in the sub-region³². As shown in the Zambian study, women's likelihood of contraception decreases as they grow older because they become more focused on conception rather than preventing pregnancy³³. Increased distances to service providers also hinder family planning as they restrict access³⁶. Akamike and colleagues discussed the implications of a lack of family and partner support on women who use family planning³⁷. Similar to Nalerigu, in most traditional and culture-enriched settings, community norms such as the father making all family decisions as the head of the family, the belief that children are a blessing from a supreme being, and control of family assets and finances by the father negatively affect the use of family planning by women³⁸. In addition, the studies in Conakry, Guinea³⁵ and Ghana²¹ showed that misinformation and misconceptions, such as attributing contraceptives to cancer and family planning methods reserved for married couples, restricted family planning services.

Using computer-assisted personal interviewing, students may shy away from sharing their sexual and reproductive lives with others, which may have informed some of their responses. This limitation might overestimate or underestimate the proportions recorded. Also, mixed methods could have adequately gathered more evidence of their personal experiences with family planning

methods. However, the minimum required sample size was used to adequately inform the validity of the findings compared with similar studies. The study may be generalised and comparable with similar underserved settings in low and middle-income countries. Similarly, adequate and detailed statistical analysis with 95% confidence puts high trust in the quantitative findings.

Conclusion

While the knowledge of family planning was high among students enrolled at the College of Nursing and Midwifery, Nalerigu, Ghana, contraceptive utilisation was poor, mainly due to misconceptions and perceptions about family planning. Though the misconceptions noted among these students were not unique to them, it was pretty alarming to have them reported among an educated population, particularly health students receiving training to become health professionals. Lack of physical access to family planning services due to long proximity to service providers and lack of support from families and partners were also the barriers women face in culturally rich settings like Nalerigu, compounded by misconceptions and perceptions. This situation highlights the urgent need to provide education on family planning in tertiary institutions. Moreover, the Ghana Education Service in collaboration with the Health Promotion, Reproductive and Child Health arms of the Ghana Health Service should take proactive measures to establish accessible service delivery points within these tertiary institutions and to revisit current health programs, ensuring that students can easily access family planning services when needed. Ultimately, this study should promote equitable knowledge sharing among both formal and informal populations, and physical access to affordable family planning methods.

Acknowledgement

Special thanks to the staff of the College of Nursing and Midwifery, Nalerigu, Ghana.

Contribution of authors

Conceptualization and design: Zaratu S. Sulemana, Sinalo Gqunu, Francis D.N. Abobo

Hilda A. Halm, Richard K.D. Ephraim, Nat ObourAwuku, Ransford O. Kumi, Evans Duah and Clement Agoni; **Data collection:** Zaratu S. Sulemana and Evans Duah; **Data analysis:** Sinalo Gqunu and Evans Duah; **Writing - original draft:** Evans Duah and Zaratu S. Sulemana; **Writing - review and editing:** Sinalo Gqunu, Zaratu S. Sulemana, Bright Y. Amoore, Evans Duah and Clement Agoni; **Supervision and validation:** Richard K.D. Ephraim and Clement Agoni. All authors approved the manuscript.

References

1. WHO. Contraception [Internet]. World Health Organisation. 2022 [cited 2022 Apr 12]. Available from: https://www.who.int/health-topics/contraception#tab=tab_1
2. WHO. Family planning/contraception methods. [Internet]. World Health Organisation. 2020 [cited 2022 Apr 12]. Available from: <https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception>
3. WHO. High rates of unintended pregnancies linked to gaps in family planning services: New WHO study. [Internet]. World Health Organisation. 2019 [cited 2022 Apr 12]. Available from: <https://www.who.int/news/item/25-10-2019-high-rates-of-unintended-pregnancies-linked-to-gaps-in-family-planning-services-new-who-study>
4. Gebremedhin M, Semahegn A, Usmael T and Tesfaye G. Unsafe abortion and associated factors among reproductive aged women in Sub-Saharan Africa : a protocol for a systematic review and meta-analysis. *Systematic Reviews*. 2018;7(130):1–5.
5. Kriel Y, Milford C, Cordero J, Suleman F, Beksinska M, Steyn P, et al. Male partner influence on family planning and contraceptive use: perspectives from community members and healthcare providers in KwaZulu-Natal, South Africa. *Reproductive Health*. 2019 Jun 25;16(1):89.
6. Nkonde H, Mukanga B and Daka V. Male partner influence on Women's choices and utilisation of family planning services in Mufulira district, Zambia. *Heliyon*. 2023 Mar 11;9(3):e14405.
7. Akweongo P, Jackson EF, Appiah-Yeboah S, Sakeah E and Phillips JF. It's a woman's thing: gender roles sustaining the practice of female genital mutilation among the Kassena-Nankana of northern Ghana. *Reproductive Health*. 2021 Mar 1;18(1):52.
8. Sepeng NV, Moloko-Phiri SS and Mulaudzi FM. The role of patriarchy and its influences on domestic violence against females and children in Africa: An indigenous perspective. In: Mulaudzi FM, Lebesse RT, editors. *Working with indigenous knowledge: Strategies for health professionals* [Internet]. Cape Town: AOSIS; 2022 [cited 2024 Apr 29]. Available

- from:
<http://www.ncbi.nlm.nih.gov/books/NBK601349/>
9. Mulatu T, Sintayehu Y, Dessie Y and Dheresa M. Male involvement in family planning use and associated factors among currently married men in rural Eastern Ethiopia. *SAGE Open Med.* 2022 Apr 21;10:20503121221094178.
 10. Ouedraogo L, Habonimana D, Nkurunziza T, Chilanga A and Hayfa E. Towards achieving the family planning targets in the African region : a rapid review of task sharing policies. *Reproductive Health.* 2021;12(22):1–12.
 11. WHO. Maternal mortality [Internet]. World Health Organization. 2023 [cited 2023 Sep 23]. Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
 12. FP. Ghana. Commitment Maker Since 2012 [Internet]. Family Planning 2020. 2020 [cited 2022 Apr 12]. Available from: <https://fp2030.org/ghana>
 13. Wemakor A. Prevalence and factors associated with compliance to iron and folic acid supplementation in pregnancy in Tamale Metropolis, Ghana. *Nutrire.* 2020;45(2).
 14. UN. Sustainable Development Goal 3: Good Health and Well-being | United Nations in Ghana [Internet]. 2022 [cited 2022 Oct 26]. Available from: <https://ghana.un.org/en/sdgs/3>
 15. DHS. The DHS Program - DHS Questionnaires [Internet]. 2022 [cited 2023 Jul 17]. Available from: https://dhsprogram.com/Methodology/Survey-Types/DHS-Questionnaires.cfm#CP_JUMP_16179
 16. TCI. Media Stakeholder Questionnaire to Assess Knowledge, Attitude and Practices on Family Planning [Internet]. The Challenge Initiative; 2020 [cited 2023 Jan 3]. Available from: <https://tciurbanhealth.org/wp-content/uploads/2020/06/MEDIA-STAKEHOLDER-QUESTIONNAIRE-TO-ASSESS-KNOWLEDGE.pdf>
 17. Uakarn C, Chaokromthong K and Sintao N. Sample Size Estimation using Yamane and Cochran and Krejcie and Morgan and Green Formulas and Cohen Statistical Power Analysis by GPower and Comparisons. *Apheit International Journal.* 2021;76–88.
 18. Semachew Kasa A, Tarekegn M and Embiale N. Knowledge, attitude and practice towards family planning among reproductive age women in a resource limited settings of Northwest Ethiopia. *BMC Res Notes.* 2018 Dec;11(1):577.
 19. Microsoft. Download and install or reinstall Office 2019, Office 2016, or Office 2013 - Microsoft Support [Internet]. Microsoft. 2023 [cited 2023 May 26]. Available from: <https://support.microsoft.com/en-au/office/download-and-install-or-reinstall-office-2019-office-2016-or-office-2013-7c695b06-6d1a-4917-809c-98ce43f86479>
 20. StataCorp. Stata Statistical Software. College Station, TX: StataCorp LLC.; 2019.
 21. Gbagbo FY and Nkrumah J. Family planning among undergraduate university students: a CASE study of a public university in Ghana. *BMC Women’s Health.* 2019 Jan 17;19(1):12.
 22. Hallidu M and Sumaila I. Determinants of emergency contraceptive utilisation among female tertiary students in the middle belt of Ghana, West Africa. *PAMJ - One Health [Internet].* 2022 Sep 9 [cited 2023 Jul 19];9(4). Available from: <https://www.one-health.panafrican-med-journal.com/content/article/9/4/full>
 23. Renjhen P, Kumar A, Pattanshetty S, Sagir A and Samarasinghe CM. A study on knowledge, attitude and practice of contraception among college students in Sikkim, India. *J Turk Ger Gynecol Assoc.* 2010 Jun 1;11(2):78–81.
 24. Bekele D, Surur F, Nigatu B, Teklu A, Getinet T, Kassa M, et al. Knowledge and Attitude Towards Family Planning Among Women of Reproductive Age in Emerging Regions of Ethiopia. *JMDH.* 2020 Nov;Volume 13:1463–74.
 25. Dangat CM, Njau B. Knowledge, attitudes and practices on family planning services among adolescents in secondary schools in Hai District, northern Tanzania. *Tanzania J Hlth Res [Internet].* 2013 Jan 22 [cited 2023 Jul 19];15(1). Available from: <http://www.ajol.info/index.php/thrb/article/view/72984>
 26. Innocent DC, Ezejindu CN, Onyemachi PE, Eneh SC, Nazir H, Uwandu-Uzoma AC, et al. Assessment of Family Planning Among Abia State University Undergraduate Students. 2022;5(12).
 27. Tilahun D, Assefa T and Belachew T. Knowledge, Attitude and Practice of Emergency Contraceptives among Adama University Female Students, Ethiopia. *Ethiop J Health Sci [Internet].* 2011 Sep 12 [cited 2024 Apr 29];20(3). Available from: <http://www.ajol.info/index.php/ejhs/article/view/69449>
 28. Keogh SC, Otupiri E, Castillo PW, Li NW, Apenkwa J and Polis CB. Contraceptive and abortion practices of young Ghanaian women aged 15–24: evidence from a nationally representative survey. *Reproductive Health.* 2021 Jul 18;18(1):150.
 29. Gichangi P, Gonsalves L, Mwaisaka J, Thiongo M, Habib N, Waitthaka M, et al. Busting contraception myths and misconceptions among youth in Kwale County, Kenya: results of a digital health randomised control trial. *BMJ Open.* 2022 Jan;12(1):e047426.
 30. Mbachu CO, Agu IC, Obayi C, Eze I, Ezumah N and Onwujekwe O. Beliefs and misconceptions about contraception and condom use among adolescents in south-east Nigeria. *Reproductive Health.* 2021 Jan 6;18(1):7.
 31. Jonas K, Duby Z, Maruping K, Harries J and Mathews C. Rumours, myths, and misperceptions as barriers to contraceptive use among adolescent girls and young women in South Africa. *Frontiers in Reproductive Health [Internet].* 2022 [cited 2023 Jul 19];4. Available from:

- <https://www.frontiersin.org/articles/10.3389/frph.2022.960089>
32. Haider TL and Sharma M. Barriers to family planning and contraception uptake in sub-Saharan Africa: a systematic review. *Int Q Community Health Educ*. 2012 2013;33(4):403–13.
33. Lasong J, Zhang Y, Gebremedhin SA, Opoku S, Abaidoo CS, Mkandawire T, et al. Determinants of modern contraceptive use among married women of reproductive age: a cross-sectional study in rural Zambia. *BMJ Open*. 2020 Mar 1;10(3):e030980.
34. Escamilla V, Calhoun L, Winston J, Speizer IS. The Role of Distance and Quality on Facility Selection for Maternal and Child Health Services in Urban Kenya. *J Urban Health*. 2018 Feb;95(1):1–12.
35. Dioubaté N, Manet H, Bangoura C, Sidibé S, Kouyaté M, Kolie D, et al. Barriers to Contraceptive Use Among Urban Adolescents and Youth in Conakry, in 2019, Guinea. *Frontiers in Global Women's Health* [Internet]. 2021 [cited 2023 Jul 19];2. Available from: <https://www.frontiersin.org/articles/10.3389/fgwh.2021.655929>
36. Hussain I, Nausheen S, Rizvi A, Ansari U, Baz M, Zehra K, et al. Distance-quality trade-off and choice of family planning provider in urban Pakistan. *International Health*. 2023 Jul 4;15(4):428–34.
37. Akamike IC, Madubueze UC, Okedo-Alex IN, Anyigor CJ, Azuogu BN, Umeokonkwo CD, et al. Perception, pattern of use, partner support and determinants of uptake of family planning methods among women in rural communities in Southeast Nigeria. *Contracept Reprod Med*. 2020 Dec;5(1):14.
- Abdi B, Okal J, Serour G and Temmerman M. “Children are a blessing from God” – a qualitative study exploring the socio-cultural factors influencing contraceptive use in two Muslim communities in Kenya. *Reprod Health*. 2020 Dec;17(1):44.