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# Contraceptive use among Students of a Health Training institution in the North-east Region of Ghana

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***Authors' contributions***

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

**Background:** Despite contraceptive awareness and availability to the general population, including higher education institutions, unplanned pregnancies continue to increase.
**Aim:** The study assessed contraceptive usage among female health students in the North-East Region, Ghana.

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**Methods:** A descriptive cross-sectional studydesign was used to assess contraceptive use among 143 female health students. The data was collected using an online survey, analysed descriptively, Chi-square test and logistic regression analysis were performed using Statistical Package for Social Sciences version 25. A p-value of <0.05 was considered statistically significant.
**Results:** The age ranged from 18 and 36 years, with a mean age of 23.7 (Sd±2.82) years, and the majority (69.9%) were in the 21-25 years age category. The mean age of first sexual intercourse was 17.8 (Sd ±5.65) years. The overall prevalence of contraceptive use was 59.0% with ever and current users being 47.6% and 35.,7% respectively. The male condom was a commonly used contraceptive (53.6%). Using the Chi-square test, we found significant differences between current contraceptive use and age at first sexual intercourse ($X^2$=*15.42*, *p=0.009*), protection during first sexual intercourse ($X^2$=*7.30*, *p=0.026*), current relationship status ($X^2$=*15.12*, *p<0.001*), and multiple sexual partners ($X^2$=*10.25*, *p=0.001*). Being in a sexual relationship (OR=4.49, 95%CI: 1.61, 12.50, *p=0.004*) was positively associated with current contraceptive use. Prevention of unwanted pregnancy/birth was the common reason for contraceptive use, with fear of perceived side effects as the reason for non-use of contraceptives.
**Conclusion:** Overall, the study found high contraceptive use with significant discontinuation among ever and current users. There is a need for public health education and promotion programmes to increase the acceptance and use of contraceptives among the study population and the public.

*Keywords: Modern contraceptives; sexual intercourse; students; pregnancy; higher institutions; Ghana.*

## 1. INTRODUCTION

Contraceptives are key public health interventions to address unmet needs for family planning and meeting the target of ensuring gender equality and women empowerment of the Sustainable Development Goal five (SDG-5) [1-4]. Universally, the use of contraceptives are reported to be increasing. However, there is a decline among Sub-Sharan African countries [4]. Regional variations in contraceptive use exist in Ghana. However, some previous studies reported prevalence of 21.5%, 31.0% in 2014 and 2018 in national representative data, and 18.5% in the Northern Region of Ghana in 2018 [4,5].

Similarly, the estimated unmet needs for birth spacing in the Northern Region is reported to be the highest (21.7%) in Ghana [5]. Ghana faces increasing medico-social challenges, including teenage pregnancy, unsafe abortion, unwanted pregnancies and sexually transmitted infections such as HIV/AIDs [6–12] due to the limited use of contraceptives. There is an increase in the incidence of unplanned pregnancies among female students in higher learning institutions in Ghana [13], potentially adversely impacting students on learning outcomes, high dropout rates and unattained goals among women [14,15]. Addressing these challenges through the use of contraceptives is highly recommended [2,4,16–18] to empower women and address the unmet needs of family planning. Therefore, a conscious effort to promote contraceptive use, especially in women of reproductive age, is necessary. This study investigated contraceptives use among female health students in the North-East Region of Ghana. Health professionals play a critical role in the dissemination of advances in healthcare and medicine, including contraceptive use. Understanding contraceptive use and associated factors among health students who would soon transition to practice are essential to encourage utilisation among other populations. The North-East Region was recently created out of the Northern Region of Ghana. There has been no reference to contraceptive use combined with associated factors conducted in the North-East Region. The study provides evidence on the significance of contraceptive use for addressing the region's unmet needs for family planning.

## 2. MATERIALS AND METHODS

### 2.1 Study Setting and Design

The study was conducted at the only tertiary health training institution, the College of Nursing and Midwifery, Nalerigu, in the North-East Region of Ghana. The North-East Region is among Ghana's six newly created regions, with Nalerigu as the regional capital. The College trains students' in programmes including nursing, midwifery, medical laboratory, nutrition and

dietetics, and physiotherapy. A cross-sectional design was used applied in the study. The study was conducted between September and October 2021.

## 2.2 Sampling Technique

An institutional-based institution-based online survey was used to collect data on contraceptive use among female health students of the College of Nursing and Midwifery, Nalerigu. We employed the online survey to reduce physical contact with participants as the study was conducted in the COVID-19 pandemic era. The online survey allowed participants to be reached remotely, and responses were received to meet the study's objective. A total of 143 female health students attempted the questionnaire out of 3095 (College of Nursing and Midwifery, Nalerigu, 2021). A link to the online survey questions was shared via female health professional students' means of contact, including email addresses and mobile phone numbers.

Before participation, study participants were asked to indicate their willingness to participate after explaining the study's rationale. Participants who stated unwillingness to participate were automatically excluded from the study. Study participants who consented to participate continued to attempt items in the survey questionnaire. The Research and Innovation Unit of the College of Nursing and Midwifery, Nalerigu, approved the study (MOH/NMTC/RES21-9/003).

### 2.2.1 Inclusion and exclusion criteria

Female students qualified to participate in the study if they were 18 years and above and pursuing any academic programme at the College of Nursing and Midwifery in Nalerigu. Students who were below 18 years of age and male students were excluded from this study.

## 2.3 Study Instrument and Data Collection

A modified survey questionnaire on contraceptive usage from previous studies was used to collect the data [4,17–19]. An English version of the electronic google form questionnaire platform was created. Independent assessors from the Department of Population and Health, School of Public Health, University for Development Studies, Tamale Campus, reviewed the questionnaire. Subsequently, a pilot study was conducted on 25 female students at a nursing training college in the Northern Region, Ghana, to assess the reliability of the questionnaire. Modifications were made where necessary to the questionnaire. The questionnaire was designed to capture data on sociodemographic characteristics, sexual history, contraceptive use, and factors associated with contraceptives use. Data quality was maintained by designing the questionnaire to allow participants to complete the form before submission. The design was done to exclude incomplete forms. The questionnaire platform also allowed only one submission by a participant.

## 2.4 Data Analysis and Presentation

The online data were extracted and converted to Microsoft Excel File (version 16) and cross-checked for distortions and accuracy. The data were transferred onto Statistical Package for Social Sciences (SPSS) (version 25) for further data management and analysis. The string data were categorised into numeric data. The outcome variable used in this study was current contraceptives use and was a dichotomous variable, "yes (1) or no" (2). The explanatory variables were age at first sexual intercourse, protected first sexual intercourse, sexual relationship status, and multiple sexual partners. The data was analysed descriptively, and chi-square and logistic regression were performed. A p-value $< 0.05$ was considered statistically significant at 95% confidence interval. The data summary was presented in frequency, percentages, charts, and tables.

# 3. RESULTS

## 3.1 Sociodemographic Characteristics

The study consisted of 143 female participants between 18 and 36 years. The mean age was 23.7 (Sd±2.82) years, and the majority (69.9%) were in the 21-25 age category. The majority (65.0%) of the participants were in the first year of training, as shown in Table 1. A higher proportion of the participants were single (85.3%), Christians (67.1%) and received a monthly income of GHC ≤ 500.0 (55.2%).

## 3.2 Sexual History and First Contraceptive use among Participants

The mean age of first sexual intercourse was 17.8 (Sd ±5.65) years, with the majority (61.5%) being 16-20 years. A high proportion (62.9%) of the participants indicated that they protected their

**Table 1. Sociodemographic characteristics of participants**

| Variables | Categories | Frequency (n= 143) | Percentage (%) |
|---|---|---|---|
| Age | ≤20 | 14 | 9.8 |
| | 21-25 | 100 | 69.9 |
| | 26-30 | 25 | 17.5 |
| | 30≥ | 4 | 2.8 |
| Marital Status | Co-habiting | 3 | 2.1 |
| | Married | 18 | 12.6 |
| | Single | 122 | 85.3 |
| Religion | Christian | 96 | 67.1 |
| | Muslim | 45 | 31.5 |
| | Traditionalist | 2 | 1.4 |
| Monthly income (GHC) | >500.00 | 64 | 44.8 |
| | ≤500.00 | 79 | 55.2 |
| Year | First-year | 93 | 65.0 |
| | Second-year | 47 | 32.9 |
| | Third-year | 3 | 2.1 |

*GHC; Ghana Cedis (Currency), Sd; Standard deviation*

first sexual intercourse. Common contraceptives used during first sexual intercourse included the male condom (32.9%), emergency contraceptive (9.8%) and contraceptive pills (9.1%). Most participants indicated that they were currently in a sexual relationship (67.8%). Of this figure, a low proportion has multiple sexual partners (19.6%), as shown in Table 2.

**Table 2. Sexual history and first contraceptive use among participants**

| Variables | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| **Age at first sexual intercourse (years)** | ≤10 | 4 | 2.8 |
| | 11-15 | 8 | 5.6 |
| | 16-20 | 88 | 61.5 |
| | 21-25 | 32 | 22.4 |
| | 26≥ | 2 | 1.4 |
| | None | 9 | 6.3 |
| **Mean age (years) at first sexual intercourse** | 17.80 (Sd ±5.65) | | |
| Protection during first sexual intercourse | Yes | 90 | 62.9 |
| | No | 43 | 30.1 |
| | None | 10 | 7.0 |
| **Contraceptive used for first sexual intercourse (n=90)** | Contraceptive pills | 13 | 9.1 |
| | Emergency contraceptives | 14 | 9.8 |
| | Female condom | 2 | 1.4 |
| | Implant | 1 | 0.7 |
| | Injection | 1 | 0.7 |
| | Male condom | 47 | 32.9 |
| | Withdrawal method | 12 | 8.4 |
| **Current relationship status** | In sexual relationship | 97 | 67.8 |
| | Not in a sexual relationship | 46 | 32.2 |
| **Multiple sexual relationship (n=97)** | Yes | 19 | 19.6 |
| | No | 78 | 80.4 |

*Sd; Standard deviation*

### 3.3 Prevalence of Contraceptive use among Participants

The prevalence of contraceptive use (ever and current users) is high among the study participants (59.0%), as shown in Fig. 1.

### 3.4 Pattern and usage of Contraceptives among Participants

The number of ever and current contraceptive users were 47.6% and 35.7%, respectively. Current contraceptive users who have multiple sexual partners were 68.5%. The male condom (53.6%), (used by partners during sexual intercourse), emergency contraceptive (52.4%), and contraceptive pills (35.7%) were the most commonly used contraceptives. The reasons accounting for contraceptive use included prevention of unwanted pregnancy/births (78.4%), prevention of sexually transmitted infections (33.3%) and partners' choice (15.5%). The major reason for the non-use of contraceptives is fear of associated perceived side effects (37.0%), as shown in Tables 3a and 3b.

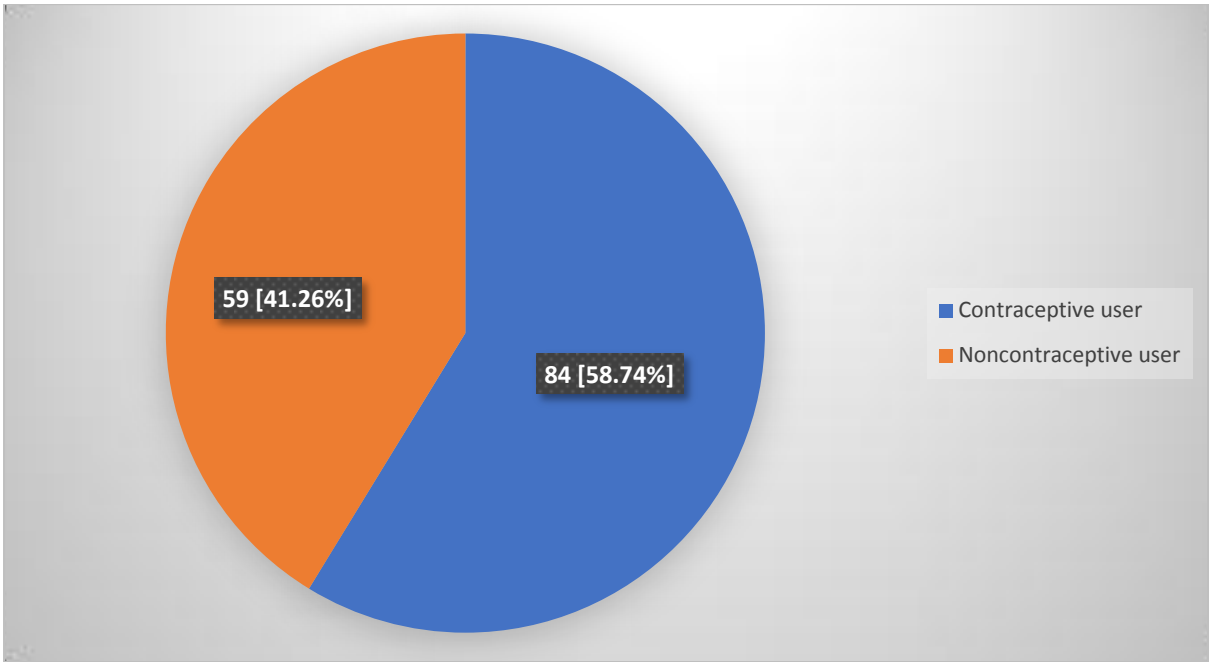


**Fig. 1. Prevalence of contraceptive use among participants**

**Table 3a. Pattern and usage of contraceptives among participants**

| Variables | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| Ever contraceptive users | Yes | 68 | 47.6 |
| | No | 75 | 52.4 |
| Current contraceptive users | Yes | 51 | 35.7 |
| | No | 92 | 64.3 |
| Current contraceptive users who have multiple sex partners (n=19) | Yes | 13 | 68.4 |
| | No | 6 | 31.1 |
| Age distribution of current contraceptive users (n=51) | ≤20 | 5 | 9.8 |
| | 21-25 | 35 | 68.6 |
| | 26-30 | 9 | 17.6 |
| | 31≥ | 2 | 4.0 |
| Marital status and contraceptive use (n=51) | Co-habiting | 0 | 0.0 |
| | Married | 5 | 9.8 |
| | Single | 46 | 90.2 |

| Variables | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| **Commonly used contraceptives by both current and previous users (Multiple response types of the question) (n=84)** | | | |
| Male condom (used by partners during sexual intercourse | Yes | 45 | 53.6 |
| | No | 39 | 46.4 |
| Female condom | Yes | 5 | 6.0 |
| | No | 79 | 94.0 |
| Emergency contraceptives | Yes | 44 | 52.4 |
| | No | 40 | 47.6 |
| Contraceptive pills | Yes | 30 | 35.7 |
| | No | 54 | 64.3 |
| Withdrawal method | Yes | 18 | 21.4 |
| | No | 66 | 78.6 |
| Injection | Yes | 10 | 12.0 |
| | No | 74 | 88.0 |
| Diaphragm | Yes | 1 | 1.2 |
| | No | 83 | 98.8 |
| Rhythm method | Yes | 2 | 2.4 |
| | No | 82 | 97.6 |
| Implant | Yes | 4 | 4.8 |
| | No | 80 | 95.2 |
| Intrauterine Device (IUD) | Yes | 1 | 1.2 |
| | No | 83 | 98.8 |

**Table 3b. Continuation: Pattern and usage of contraceptives among participants**

| Variable | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| **Reasons for using contraceptives among current users (n=51)** | | | |
| Easily available | Yes | 10 | 20.0 |
| | No | 41 | 80.0 |
| Easy use | Yes | 9 | 17.6 |
| | No | 42 | 82.4 |
| Partner's choice | Yes | 13 | 15.5 |
| | No | 38 | 84.5 |
| Less expensive | Yes | 7 | 13.7 |
| | No | 44 | 86.3 |
| Spacing of birth | Yes | 3 | 3.6 |
| | No | 48 | 96.4 |
| Prevention of unwanted pregnancy/birth | Yes | 40 | 78.4 |
| | No | 11 | 21.6 |
| Prevention of sexually transmitted infections | Yes | 17 | 33.3 |
| | No | 34 | 66.7 |
| **Reasons for not using contraceptives among current non-users (n=92)** | | | |
| Bad perception of society toward its uses | Yes | 5 | 5.4 |
| | No | 87 | 94.6 |
| I am a Christian, and therefore I am forbidden to use | Yes | 9 | 9.8 |
| | No | 83 | 90.2 |
| I am a Muslim, and therefore I am forbidden to use | Yes | 2 | 2.2 |
| | No | 90 | 97.8 |
| It is not readily available | Yes | 0 | 0.0 |
| | No | 92 | 100.0 |

| Variable | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| Fear of side effects | Yes | 34 | 37.0 |
| | No | 58 | 63.0 |
| Not sexually active | Yes | 9 | 9.8 |
| | No | 83 | 90.2 |
| My partner does not allow me to use | Yes | 9 | 9.8 |
| | No | 83 | 90.2 |
| Stigmatization | Yes | 4 | 4.3 |
| | No | 88 | 95.7 |
| Costly | Yes | 5 | 5.4 |
| | No | 87 | 94.6 |

### 3.5 Association between Sexual History and Current Contraceptive use among Participants

A chi-square was performed to determine the association level between the dependent variable (current contraceptive use) and the independent variables, including sociodemographic characteristics and the sexual history of study participants. The Chi-square test showed significant differences between age at first sexual intercourse ($X^2$=*15.42*, *P=0.009*), protection during first sexual intercourse ($X^2$=*7.30*, *P=0.026*), and current relationship status ($X^2$=*15.12, P<0.001*) and multiple sexual partners ($X^2$=10.25, *P=0.001*) as shown in Table 4.

### 3.6 Predictors of Contraceptive use among Participants

We performed a logistic regression analysis to determine the association between independent and dependent variables of current contraceptive use. We found that being in a sexual relationship (OR= 4.49, 95%CI (1.610-12.498), *p=0.004*) was positively associated with contraceptive use among study participants, as shown in Table 5.

**Table 4. Association between sexual history and current contraceptive use of participants**

| Variables | Categories | Current contraceptive use | | p-value ($X^2$, df.) |
|---|---|---|---|---|
| | | Yes | No | |
| **Age at first sex (years)** | | | | **0.009 (15.42, 5)** |
| | ≤10 | 2 | 2 | |
| | 11-15 | 2 | 6 | |
| | 16-20 | 41 | 47 | |
| | 21-25 | 6 | 26 | |
| | 26≥ | 0 | 2 | |
| | None | 0 | 9 | |
| **Protection during first sexual intercourse** | | | | **0.026(7.30, 2)** |
| | Yes | 21 | 42 | |
| | No | 30 | 40 | |
| | None | 0 | 10 | |
| **Current relationship status** | | | | **<0.001 (15.12,1)** |
| | In a sexual relationship | 45 | 52 | |
| | Not in a sexual relationship | 6 | 40 | |
| **Multiple sexual partners** | | | | **0.001(10.25,1)** |
| | Yes | 13 | 6 | |
| | No | 38 | 86 | |

**Table 5. Predictors of contraceptive use among participants**

| Variables | P-Value | OR (95%CI) |
|---|---|---|
| **Protection during first sexual intercourse** | | |
| Yes | 0.894 | 0.89 (0.159-4.984) |
| No | 0.376 | 0.44 (0.070-2.734) |
| None (RC) | | - |
| **Relationship status** | | |
| In a sexual relationship | 0.004 | 4.49 (1.610-12.498) |
| Not in a sexual relationship (RC) | | - |
| **Multiple sexual partners** | | |
| Yes | 0.119 | 2.67 (0.777-9.195) |
| No (RC) | | - |

*RC; Reference Category, OR; Odds Ratio*

## 4. DISCUSSION

Our study provides the findings on institutional-based contraceptive use in the North-East Region. We found the overall contraceptive use to be high (59.0%), with relatively higher proportions of ever (47.6%) and current users (35.7%). Similar to previous studies, contraceptive use was reported to be high among health students in Ghana [20], female tertiary students in Botswana [21] and low among other tertiary students in Ghana [13]. The results in our study are significant considering our participants, who are health students. Their contraceptive usage may affect the type of education and recommendation they offer to the public and potential users. The high contraceptive use among participants may be partly due to their health background, making them well informed about the important benefits of contraceptives. Comparatively, there was significant discontinuation of contraceptive use among ever and current users. The discontinuation raises a significant public health challenge, considering recent reports of increasing unplanned pregnancies among tertiary students globally [13,22]. Understanding the factors accounting for the discontinuation among contraceptive users offers essential data for public health education and promotion activities and for preventing unplanned pregnancies. Among the reasons reported by participants for non-use of contraceptives included; fear of perceived side effects, partners not encouraging contraceptive use and a wrong perception of society towards contraceptive use. These reasons have been equally identified by other researchers [5,23,24]. These reasons should be addressed if Ghana and the subregion are to meet their family planning needs. The enablers of contraceptive use among current users provide public health experts in family planning services with valuable information to address unmet family planning needs. Unavailability of contraceptives was not cited as a reason for the non-use of contraceptives among non-users; this was confirmed by current users indicating that contraceptives were readily available. The latter may highlight Ghana's progress towards achieving universal family planning and the SDGs 3 and 5 by 2030. Our study found that partners can influence the use or disuse of contraceptives. Therefore, contraceptive use interventions should be bidirectional, targeting females and males to achieve optimum acceptance and use.

Teenagers should be a target for contraceptive use to reduce sexually transmitted infections, including HIV/AIDS, teenage pregnancies, and attendant consequences. Most participants engaged in sexual activities during their adolescent period, and it was high among persons within the age groups of 16-20 years. Other recent studies in the northern region of Ghana reported sexual activities among 16 years and above [25-30]. Important in this study is the finding of early use of contraceptives among our study participants, re-emphasising a need to target teenagers in family planning services in Ghana. The knowledge and use of contraceptives among senior high school students were relatively low in a northern region study [23]; such individuals are typically teenagers. Our findings corroborate the findings of Abdul-wahab et al. [25], knowledge, attitudes and practices of sexual and reproductive health among teenagers were poor in the Tamale Metropolis, Ghana. These findings stress the need to intensify the efforts in addressing the unmet needs of family planning, including knowledge and the use of contraceptives. More significantly, public health interventions on contraceptive use should consider factors such

as age at first sexual intercourse, protection during first sexual intercourse, current relationship status and persons with multiple sexual partners.

## 5. STUDY LIMITATION

The data used in this study was self-reported and subjected to information biases combined with our inability to confirm the responses. The study was limited to only females and may not express males' perspectives on contraceptive use. However, our study provides essential information on contraceptive use among significant subpopulations as healthcare students who would soon transition to practice. Understanding contraceptives use provides vital information that could be factored into health education and promotion programmes at the various healthcare facilities to increase contraceptive uptake and prevent unwanted pregnancies among tertiary students.

## 6. CONCLUSION

Overall, the study found high contraceptives use and a relatively higher proportion of current contraceptive users. Comparatively, contraceptive dropout was significant among ever users and existing users. An essential reason for discontinuation of contraceptive use included fear of side effects which can be relied on for public health education and promotion programmes. Educating the public on contraceptives should be re-emphasised to increase acceptance and use.

## SUPPLEMENTARY MATERIALS

Supplementary materials available in this link: https://journaljammr.com/index.php/JAMMR/libraryFiles/downloadPublic/22

## ETHICAL APPROVAL

The Research and Innovation Unit of the College of Nursing and Midwifery, Nalerigu, approved the study (MOH/NMTC/RES21-9/003).

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## WHAT IS KNOWN

- Contraceptives reduce pregnancy-related morbidity and mortality
- Contraceptives reduce unwanted pregnancies
- Contraceptives benefit the education of women and empower them for higher opportunities

## WHAT IS ADDED

- Early initiation of sexual activities
- Substantial use of contraceptives
- Significant discontinuation of ever users and current users of contraceptive
- Barriers to contraceptive use correspond with reports of other studies

## WHAT ARE THE GLOBAL AND PUBLIC HEALTH POLICY IMPLICATIONS?

- Teenagers should be considered in contraceptive interventional programmes.
- Health promotional activities on contraceptive usage should be intensified, especially among health professionals and students.
- Barriers to contraception should be of global and national concern.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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