Unplanned pregnancy among female students at universities in the Eastern Cape Province, South Africa

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Abstract

Unplanned pregnancy has adverse effects including unsafe and illegal abortions causing maternal morbidity and mortality. Despite the adverse impact of unplanned pregnancy on women's personal life, their families, and society, there is a dearth of knowledge on unplanned pregnancy in institutions of higher education and training in South Africa. As a result, the objective of this study was to assess unplanned pregnancy and underlying factors among unmarried female students in universities in Eastern Cape. This was a cross-sectional survey of 1269 unmarried female students from universities in Eastern Cape selected using multistage cluster sampling. The study found that the prevalence of unplanned pregnancy was 12.31%, Health Science student (AOR: 0.41, 95% CI [0.17, 0.99], p < 0.001) were less likely to experience unplanned pregnancy. Being financially supported by a family (AOR: 0.17, 95% CI: [0.07, 0.43], p< 0.001) and being aged less than or equal to 18 years during the first sexual intercourse (AOR: 6.32, 95% CI: [2.57, 15.54], p < 0.001) were associated with unplanned pregnancy. Rural residence (AOR=3.93; 95% CI: (1.21, 12.84), p < 0.001), not using contraceptives (AOR=10.63; 95% CI: 5.29, 21.37, p < 0.001) and having divorced parents (AOR=1.99; 95% CI: 1.14, 3.94), p < 0.001) were associated with unplanned pregnancy compared to their counterparts, respectively. The prevalence of unplanned pregnancy is high among unmarried female students in universities in Eastern Cape. Unplanned pregnancy was influenced by age at first sexual intercourse, non-use of contraceptives, divorced parents, the field of study, and the source of financial support. Universities and stakeholders should work together to support reproductive health programmes to prevent unplanned pregnancy. (*Afr J Reprod Health 2022; 26[7]: 29-37*).

Keywords: Public health; unplanned pregnancy; university female students; factors associated with unplanned pregnancy

Résumé

Les grossesses non planifiées ont des effets néfastes, notamment des avortements dangereux et illégaux entraînant une morbidité et une mortalité maternelles. Malgré l'impact négatif des grossesses non planifiées sur la vie personnelle des femmes, leurs familles et la société, il y a un manque de connaissances sur les grossesses non planifiées dans les établissements d'enseignement supérieur et de formation en Afrique du Sud. En conséquence, l'objectif de cette étude était d'évaluer les grossesses non planifiées et les facteurs sous-jacents chez les étudiantes célibataires des universités du Cap oriental. Il s'agissait d'une enquête transversale auprès de 1269 étudiantes célibataires d'universités du Cap oriental sélectionnées à l'aide d'un échantillonnage en grappes à plusieurs degrés. L'étude a révélé que la prévalence des grossesses non planifiées était de 12,31 %. Les étudiantes en sciences de la santé (RCA : 0,41, IC à 95 % [0,17, 0,99], p < 0,001) étaient moins susceptibles de subir une grossesse non planifiée. Être soutenu financièrement par une famille (AOR : 0,17, IC 95 % : [0,07, 0,43], p<0,001) et avoir un âge inférieur ou égal à 18 ans lors du premier rapport sexuel (AOR : 6,32, IC 95 % : [2,57, 15,54], p < 0,001) étaient associés à une grossesse non planifiée. C résidence rurale (AOR=3,93 ; IC 95% : (1,21,12,84), p < 0.001), n'utilisant pas de contraceptifs (AOR=10.63 ; IC 95% : 5.29, 21.37, p < 0.001) et avant des parents divorcés (AOR= 1.99; IC à 95 % : 1,14; 3,94), p < 0,001) étaient associés à une grossesse non planifiée par rapport à leurs homologues, respectivement. La prévalence des grossesses non planifiées est élevée parmi les étudiantes célibataires des universités du Cap oriental. Les grossesses non planifiées étaient influencées par l'âge au premier rapport sexuel, la non-utilisation de contraceptifs, les parents divorcés, le domaine d'études et la source de soutien financier. Les universités et les parties prenantes doivent travailler ensemble pour soutenir les programmes de santé reproductive afin de prévenir les grossesses non planifiées. (Afr J Reprod Health 2022; 26[7]: 29-37).

Mots-clés: Santé publique ; Grossesse non planifiée; Étudiantes universitaires; Facteurs associés à la grossesse non planifiée

Introduction

Unplanned pregnancy is a pregnancy that is unintended, mistimed, or unwanted at the time of conception and is a critical public health issue in both developing and developed countries^{1-3,42,48-49}. Unplanned pregnancy has a negative impact on women's personal life, their families, and society.

Globally, 74 million women living in low and middle-income countries have unplanned pregnancy every year¹⁸. Evidence from sub-Saharan Africa indicates that 35% of pregnancies among 15–19-year-olds were unplanned^{29,38,50}.

The issue of unplanned pregnancy, in South Africa poses a serious public health concern among youths because this public health issue exposes young women and their new-borns to potential adverse health and social outcomes^{32,39,52}. Adverse outcomes include the likelihood of maternal depression and anxiety, unsafe abortion, premature birth and low birth weight^{8,49}. In addition, unplanned pregnancy is socially disruptive and impact negatively on educational progress and future career prospects^{9,51,53}. Studies suggest that women with unplanned pregnancy are likely to be less well educated and poorer than women without such pregnancies¹⁰⁻¹².

Evidence shows that unplanned pregnancy takes place mainly because of inconsistent or nonuse of contraceptives including condoms. contraceptive failure, and rape¹³⁻¹⁴. Studies have identified factors that result in unplanned pregnancy among youth which are demographic, behavioural and socioeconomic factors that include poor socioeconomic status, living arrangements, age, sexual coercion, peer pressure, ignorance, unprotected sex, sex socialisation, and negative attitudes towards contraception¹⁶⁻²⁰.

In South Africa, there are considerable studies at the national level that have investigated unplanned pregnancy and their underlying factors in general^{12,52}. However, there is a dearth of studies on unplanned pregnancy and their underlying factors among unmarried female students in institutions of higher education and training. Therefore, research is needed to determine the prevalence of unplanned pregnancy and predictors among university students in the Eastern Cape Province. Knowledge to be generated through this study on the prevalence of unplanned pregnancies and associated factors may help to inform the development of effective policy changes and targeted interventions to reduce the likelihood of experiencing unplanned pregnancy and related negative consequences.

Methods

Research design

A cross-sectional research design guided the investigation into the prevalence of unplanned

pregnancy and predictors among university students in the Eastern Cape Province, South Africa. A crosssectional research design was used because the design allows studies to collect data to make inferences about a population of interest at one point in time ⁴. Besides, this design was chosen because it allows studies to collect data from many different individuals at a single point in time. In this case, data were collected from four different public universities in Eastern Cape.

Research approach

The study used quantitative research approach which is the process of collecting and analysing numerical data⁴. Quantitative research approach can be used to find patterns and averages, make predictions, test causal relationships, and generalise results to wider populations. Quantitative research methodology in this study is used to quantify the prevalence and underlying factors to unplanned pregnancy among female students using numerical data that is transformed into statistics. These statistics helped to understand the research problem under study.

Sampling technique

The study used multi-stage sampling method to select respondents. In the first stage, all universities in Eastern Cape namely Nelson Mandela University (NMU), University of Fort Hare (UFH), Rhodes University (RU) and Walter Sisulu University were selected using census sampling technique. Second stage, from each University, faculties and colleges were categorised as faculties/colleges of humanities, agriculture, engineering and science, health sciences and law and management studies. Third stage, the list of female students was generated from students' register in each faculty/college. Fourth stage, proportional sampling technique was applied to select unmarried female students from each faculty/college distributed based on female students' level of study. This was followed by the application of simple random sampling technique to select the sample for the study from six thousand unmarried female students. One thousand two hundred sixtynine (1269) students successfully completed the questionnaire.

Data collection instruments

d the Data were collected using a questionnaire. To anned achieve the aim of the study and high response rate, *African Journal of Reproductive Health July 2022; 26 (7):30* six thousand unmarried female students in the first, second, third-and fourth-year level of study were invited to complete the questionnaire through their respective university communication systems. The survey used a questionnaire with several items including demographics, pregnancy and sexual behaviour variables such as ever had sexual intercourse, age at first sexual intercourse, from whom had sexual intercourse, pressure to have sexual intercourse without using a condom, history of unintended pregnancy, ever heard about emergency contraception, ever had used any family planning, and type of contraceptive methods used. Students were asked whether ever faced unintended pregnancy, used modern family planning, and heard about emergency contraceptive.

The source of money was assessed through a question asking the study participants on their sources of money. The questionnaire was developed by the researcher in 2021 based on existing questionnaires on the prevalence and underlying factors to unplanned pregnancy among students⁵⁻⁷. The questionnaire was reviewed by subject experts for face validity.

A pilot sample (n=10) was used to improve the wording and clarity of expression of the survey items. Data from the pilot sample was not used in any further analysis. The final version of the questionnaire required an estimated time of 5-15 minutes to complete. The questionnaire was posted online together with the consent form describing the purpose of the study in detail. One thousand two hundred sixty-nine questionnaires were collected. The total number of unmarried female students expected to complete the survey was 6 000. Using the confidence level 95%, population size 6 000 and margin of error 5% the ideal sample size is 365 but this study generated 1269 questionnaires expressing more than one hundred per cent response rate.

Data analysis

Data were analysed using descriptive statistics that included the computing of percentages and frequencies. Bivariate and multivariable logistic regression analyses were performed, and adjusted odds ratios (AORs) calculated with 95% confidence interval to determine the associations between unplanned pregnancy and independent variables. All variables with a p=value <.25 in the bivariate analysis were considered for the final multivariable analysis while variables with a p=value <.05 were considered in the final multivariable logistic regression model to determine significance of the association with the outcome variable unplanned pregnancy.

Results

Demographics

The data for this study were collected from 1269 respondents. The response rate was more than 100%, and the average age of students was 20.61 (\pm 2.23) years. A large portion of students in the study were from urban areas. Findings show that 88.70% of the students had financial support from their families, and 72.00% earned more than R2500 South African Rand per month as shown in Table 1. From the total number of participants, 73.50% were from health sciences field of study and 90.00% were first years.

Pregnancy and sexual behaviour among students

About 38.00% of the students in this study had a history of engaging in unplanned penetrative sexual intercourse, 79.31% started engaging in penetrative sexual intercourse at the age ≤ 18 years and 81.44% o in penetrative sexual intercourse had sex with their boyfriends. Among students engaging in penetrative sexual intercourse, 11.35% of them were initiated into penetrative sexual intercourse by rape or force and 7.21% did not reveal their initial penetrative sexual intercourse partners as shown in Table 2.

There were no students in this study who were forced to have sex without using a condom, and unplanned pregnancy was 12.31%. Results indicate that 52.41% of the students in the study had heard about emergency contraception and 24.19% reported to be using contraceptive methods.

From the total of 306 students who reported using contraceptives, 79.51% used pills and 20.49% used injections. Among all students who use contraceptives, 24.19% used emergency contraceptive.

Underlying factors to unplanned pregnancy

The study performed multivariable logistic regression to ascertain the underlying factors to unplanned pregnancy among students. Results in the model show that the field of study, non-use of

Table 1	: So	cio-demo	ographics
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Items	Category	Frequency	Per cent (%)
Residence	Urban	651	57.81
	Rural	516	40.19
Age	≤ 18 years	420	34.00
	>18 years	737	66.00
Source of financial	Family	1034	90.71
support	Friend	134	9.29
	Others	45	3.90
Income per month	≤R2000	110	26.29
-	>R2500	279	73.71
University	Nelson Mandela University	438	37.50
-	Rhodes University	360	15.40
	Walter Sisulu University	369	31.60
	University of Fort Hare	180	15.40
Year of study	First year	525	45.00
-	Second year	69	5.90
	Third year	48	4.10
	Fourth year	525	45.00
Field of study	Health Sciences	858	73.50
-	Non-Health Sciences	309	26.50

Table 2: Pregnancy and Sexual behaviour characteristics among students

Items	Category	Frequency	Percent (%)
Age when you had penetrative sexual intercourse	≤18Years	327	79.31
	>18years	96	20.69
Ever had unplanned penetrative sexual	Yes	423	38.20
intercourse	No	734	61.80
With whom have you been having penetrative	Forced sex	48	11.35
sexual intercourse?	Boyfriend	336	81.44
	Not disclosed	39	7.21
You have been pressured to have sex without a	Yes	0	0.00
condom	No	723	100.00
You had unplanned pregnancy	Yes	120	12.31
	No	1047	87.69
Have ever heard of emergency contraception	Yes	588	52.41
	No	579	47.59
Have ever used any contraceptive methods	Yes	306	24.19
	No	861	75.81
Artificial contraceptive method used	Post pills	237	79.51
	Injections	69	20.49

contraceptives, place of residence, divorce of parents, age at first penetrative sexual intercourse and source of money were significantly associated with unplanned pregnancy. Students who started engaging in penetrative sexual intercourse at the age \leq 18 years were six times (AOR: 6.32, 95% CI: [2.57, 15.54], p < 0.001) more likely to experience unplanned pregnancy than their counter parts. Students from the field of Health Sciences had 60.00% less chance to experience unplanned pregnancy (AOR: 0.41, 95% CI [0.17, 0.99], p < 0.001), students getting financial support from their family were 84.00% less likely to experience risk of

unplanned pregnancy (AOR: 0.17, 95% CI: [0.07, 0.43], p < 0.001) than their counterparts as shown in Table 3.

Students coming from rural settings were five times more likely (AOR=3.94; 95% CI: 1.21, 12.84) than their counterparts to experience unplanned pregnancy than their counter parts, and students who were not using contraceptives were more likely (AOR=10.63; 95%CI: 5.29, 21.37) to have unplanned pregnancy. Students from divorced parents were two times more exposed to unplanned pregnancy compared to their counterparts (AOR=1.99; 95%CI: 1.14, 3.94).

Items	Response	History of unplanned pregnancy		COR (95 % CI)	AOR (95 % CI)
		No (%)	Yes (%)	× ,	. ,
Residence	Rural				
		24 (18.00)	96 (82.00)	1	1
	Urban	627 (57.90)	420 (42.10)	5.98 (2.68, 13.35)*	2.31 (0.50, 11.24)
Age	≤18 years	324 (75.10)	96 (20.90)	8.94 (3.99, 20.02)*	1.28 (2.47,20.56)
C	>18 years	723 (94.80)	24 (5.20)	1	
Source of financial	Boyfriend	72 (58.00)	48 (42.00)	1	1
support	2	. ,			
	Family	978 (91.40)	69 (8.60)	0.12 (0.06, 0.24) **	0.17 (0.07, 0.43) **
Using contraceptives	Using	626 (57.90)	421 (42.11)	5.97 (2.68, 13.36)*	2.32 (0.51, 11.25)
C I	Not using	325 (75.10)	94(20.90)	8.94 (3.99, 20.02)*	1.28 (2.47,20.56)
Parents' marriage status	Married	25 (18.00)	95 (82.00)	1	1
e	Divorced	628 (57.90)	419 (42.10)	5.98 (2.68, 13.35)*	2.31 (0.50, 11.24)
Income per month	≤R2000	337 (27.20)	732 (72.80)	1.20 (0.54, 2.69)	
I.	- >R2000	24 (18.00)	96 (82.00)	1	
University	Nelson Mandela	417 (37.80)	21 (19.50)	0.44 (0.17, 1.11)	
Ş	University		· · · ·		
	Rhodes	150 (26.70)	60 (52.00)	1.70 (0.81, 3.59)	
	University	· · · ·	· · · ·		
	Walter Sisulu	330 (29.50)	39 (34.50)	1	
	University		· · · ·		
	University of	150 (16.30)	90 (27.00)	1.70 (0.81, 3.59)	
	Fort Hare		· · · ·		
Field of study	Health Sciences	786 (73.10)	251 (26.90)	0.51 (0.26, 0.99) **	0.41 (0.161, 0.979) **
2	Non-Health	72 (58.00)	54 (42.00)	1	
	Sciences	· · · ·	· · · ·		
Year of study	First year	724 (86.30)	123 (13.70)	0.40 (0.10, 1.71)	
2	Second and	104 (93.00)	6 (8.00)	1	
	above year	. ,			
Age when you had first	≤18 years	324 (28.95)	723 (71.05)	8.94 (3.99, 20.02)	6.32 (2.57, 15.54) **
penetrative sexual	•			**	
intercourse	>18 years	96 (78.00)	24 (22.00)	1	1
Have you ever heard of	No	565 (93.90)	24 (6.10)	4.52 (1.93, 9.60)*	0.542 (0.207, 1.421)
emergency	Yes	492 (81.70)	96 (18.30)	1	1
contraceptive			· · · ·		
Have you ever used	No	210 (66.60)	96 (33.40)	15.95 (7.05, 36.13)	1.540 (0.207, 5.421)
artificial contraceptive		. ,	. /	*	
methods	Yes	837 (95.20)	24 (5.80)	1	
		× /			

Table 3: Facto	rs associated	with un	planned	pregnancy
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Discussion

The study found that 38.00% of the students had a history of having unplanned penetrative sexual intercourse. The finding is similar to the findings reported by studies in Tanzania¹¹ and Ethiopia⁷. However, the current finding is lower. The precise cause of this variance in findings is not known but can be attributed to the better availability of appropriate and culturally sensitive sexual reproductive health care awareness programmes than in other two countries and their institutions of higher learning. The view above is supported by a study that reported that universities in South Africa have better health programmes including the Higher Education and Training HIV/AIDS Programme (HEAIDS) which is a national programme to develop and support the HIV/TB/STI and General Health and Wellness mitigation initiatives at South Africa's public Higher Education Institutions (HEIs) and Technical and Vocational Education and Training (TVE)³⁴.

The study reported that 79.31% of the students started having penetrative sexual intercourse at the age \leq 18 years. The finding agrees with the study conducted in South Africa that reported that 77% of the students initiated penetrative sexual intercourse when they were 18 years³⁸. The finding is also supported by a study conducted in Cameroon that reported similar results and explained that the year after the initiation of penetrative sexual intercourse is a time of high risk

for unplanned pregnancy and girls made their first visit to a clinic because they suspected that they were pregnant⁴⁷.

This study revealed that 81.44% of students engaging penetrative sexual intercourse had sex with their boyfriends. The finding resonates well with the results from another study in Ghana that reported that in 80% of unplanned pregnancies boyfriends were responsible³⁵, an indication that students were having penetrative sexual intercourse mainly with their boyfriends.

The prevalence of unplanned pregnancy was 38.00%. The finding agrees with findings reported in studies conducted in China³¹ and Nigeria¹³ among students that reported similar results. However, the finding reported in this current study is lower than findings reported in studies conducted in Tanzania, Zambia and Thai on the prevalence of unplanned pregnancy^{11,45,46}. The lower prevalence of unplanned pregnancy in this study compared to other studies can be accredited to pregnancy prevention programmes with designs based on prior scientific studies, and with rigorous evaluations that stand out as having large, sustained and clearly documented impacts. On the other hand, the finding on the prevalence of unplanned pregnancy is higher than findings reported in the United States¹⁸. The variance in findings may be caused by needs for contraception in South Africa and developing countries that are not adequately met. In addition, evidence shows that in developing countries compared to the United States, the engagement in sexual activity in exchange for money, goods, or other negotiated items among students is high because of high poverty levels³². Engaging in sexual activity for imbursement makes it difficult for female students to negotiate for safe sex or use contraception such as condoms^{13,27}.

Though the study found that 70.40% of the students had heard about emergency contraception, unplanned pregnancy rate was high. The findings imply that students' level of knowledge about emergency contraception is high, but they have challenges with utilisation of this method. The findings is supported by findings from studies in Kenya³⁷ and Ghana³⁵ that found similar results. The findings imply that there is a gap between knowledge and practice among students. In agreement, a study in Tanzania found that students' familiarity or awareness, of someone emergency

contraception, such as facts is not equal to emergency contraception utilisation⁴⁴.

Out of students who reported using contraceptives, majority (79.51%) used pills. The finding agrees with a study in China and Ethiopia that reported that majority of students were using contraceptive pills⁴¹. The finding disagrees with the finding of the study in South Africa that reported that half of the women in the studies were using injectable contraception²⁵. The high rate of students in the current study using contraceptive pills may be attributed to students' awareness that pills' side effects may be less intense than those on the shot or injection. In agreement, a study in Chile reported that contraceptive pills have other health benefits, including lighter periods and reduced menstrual cramps¹⁰ while a study in South Africa found that contraceptive pills allow women to get pregnant as soon as they stop taking the pill, and are convenient since students can take them anywhere, rather than having to visit physicians' office for an injection²⁵. Besides, the South African household survey assessed contraception coverage among women aged 15 - 49 years in the general population and identified underserved populations that may not be knowledgeable as students on the pros and cons of both pills and injectable contraceptives.

The study found that 67.50% of the students have used emergency contraceptive. The finding is supported by a study in Malawi and China that reported similar results^{26,28}. The finding suggests many students engage in unprotected that intercourse, or have concerns about possible contraceptive failures, or incorrect use of contraceptives that can lead to unplanned pregnancy. Results indicate that students who had started engaging in penetrative sexual intercourse at the age \leq 18 years were six times more likely to experience unplanned pregnancy than their counterparts. In agreement, a study in Tanzania and in Cameroon reported similar results^{30,36}.

Students from rural areas were more likely to experience unplanned pregnancy compared to their counterparts. This finding agrees with a study conducted in Kenya³⁷. The possible explanation to this finding might be that students from rural areas may have limited access to information on contraceptives. Students who do not use contraceptives were more likely to have unplanned pregnancy compared to those using contraceptives.

The finding is supported by studies that reported that the prevalence of students' unplanned pregnancy was higher among students who were not using contraceptives^{18,20,36,40}. In agreement, a study in Ethiopia found that as the number of students who do not use contraceptives increased the number of unplanned pregnancies increased⁷.

Students from the discipline of Health Sciences were 60.00% less likely to experience unplanned pregnancy. The finding is supported by a study in Pakistan, Brazzaville and Nigeria^{19,22,24}. The finding may be attributed to the argument that health sciences students through their academic studies have better knowledge than their counterparts on the deliberate use of artificial methods or other techniques to prevent pregnancy because of sexual intercourse. In agreement, a study in Ethiopia found that health sciences students' knowledge of reproductive health rights acquired from their university education and training made them less likely to be prone to unplanned pregnancy⁴³. The same study further stated that having knowledge on reproductive health can prevent premarital penetrative sex and unplanned pregnancy⁴³. In agreement, a study in China found that health sciences students did not only have better knowledge of contraception but understanding of major forms, safe and benefits of artificial contraception³¹.

Students who were financially supported by their boyfriend had higher risk of experiencing unplanned pregnancy. The finding is similar to the results reported in Ethiopia that boyfriends were responsible for their girlfriends' pregnancy and attributed high level of unplanned pregnancy to having transactional sex which is sexual relationships where the giving and/or receiving of gifts, money or other services is an important factor common in developing countries such as South Africa⁴³.

The study found that the early age at first penetrative sexual intercourse increased students' likelihood of having unplanned pregnancy. A study in South Africa³⁸, Thai⁴⁶, and Nigeria¹ reported similar findings. The finding can be attributed to the argument that as age increases, students who are sexually active tend to have more exposure to penetrative sexual intercourse hence their chance of having unplanned pregnancy also increases.

Students from divorced parents were more susceptible to unplanned pregnancy compared to

their counterparts. This finding is attributed to the low communication about sexual and reproductive issues and lack of parental control among divorced parents compared to married ones. This leads to early initiation to penetrative sexual intercourse and risky sexual behaviours among students from divorced parents. All these factors expose students to unplanned pregnancy.

Ethical considerations

With adequate knowledge of the study, female students were asked to sign the consent form by ticking on the right side of the questionnaire if they wanted to participate. Students were informed that participation in the study was voluntary and were at liberty to withdraw from the study anytime without any consequences. Confidentiality, privacy, and anonymity were upheld. The contact details for Nelson Mandela University Research Office were provided in case students had questions. The four universities under study provided gatekeepers' letters and Nelson Mandela University provided ethical clearance. The questionnaire ran online from July 2021 to August 2021.

Conclusion

The study found unplanned penetrative sexual intercourse to be high, students started having penetrative sexual intercourse at a younger age, mostly have sex with boyfriends, and there is a gap between knowledge of emergency contraceptives and the utilisation to prevent unplanned pregnancy. The study found the prevalence of unplanned pregnancy to be high among students. The study ascertained that unplanned pregnancy was associated with the age of the students at their first penetrative sexual intercourse, being in the discipline of non-health sciences, coming from rural areas, having divorced parents, and the source of students' financial support. There is need for universities, families and stakeholders to work together to support health reproductive programmes to prevent unplanned pregnancy.

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Conflict of interests

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