An Investigation Into the Knowledge, Attitude and Predictors of Safe Abortion Among Female Students in the Eastern Cape, South Africa

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Research Article

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Abstract

Background

Safe abortions are performed throughout the world. In South Africa, abortion is legal but over half of abortions remain unsafe and there is a dearth of studies on safe abortion among students. The aim of this study was to investigate into the knowledge, attitude, and predictors of safe abortion among female students in the Eastern Cape Province, South Africa.

Methods

The study was guided by a cross-sectional research design and underpinned by quantitative methodology. A self-administered questionnaires was used to collect data from female students selected using a multi-stage sampling method. Data was analysed using SPSS version 24, and bivariate and multivariable logistic regression was performed to determine the association of dependent and independent variables.

Results

Data was collected from 1266 female students with the response rate of more than 100%. The study found that 866 (68.5%) of the students had good knowledge about safe abortion. Having ever heard about safe abortion (AOR = 4.37, 95% CI: 1.89, 10.84), older age (AOR = 2.79, 95% CI: 1.17, 7.29), family education (AOR = 3.19, 95% CI: 1.33, 7.07), and urban habitation (AOR = 2.43, 95% CI: 1.27, 4.36) were predictors of students' knowledge of safe abortion. Findings show that 722 (57%) of students had favourable attitude towards safe abortion. Staying in an urban area (AOR = 1.52, 95% CI: 1.10, 2.22), and age (AOR = 6.59, 95% CI: 2.72, 11.22) were found to be significant predictors of students’ attitude towards safe abortion.

Conclusion

The study revealed that half of the students had good knowledge and attitude towards safe abortion while a significant proportion had poor knowledge and unfavourable attitude. Findings show that having ever heard about abortion, residence, age of students, and family education were predictors of knowledge on safe abortion. In addition, age and residents were predictors of students’ attitude towards abortion. There is need for health communication and education programmes to address the subject of safe abortion among students. Health communication and education programmes should target students from rural areas and employ age-specific programmes. Government should provide youth-friendly reproductive services to the rural areas of South Africa.

Plain English Summary

Safe abortions are performed throughout the world. In South Africa, abortion is legal but over half of abortions remain unsafe and there is a dearth of studies on safe abortion among students. The aim of
this study was to investigate into the knowledge, attitude, and predictors of safe abortion among female students in the Eastern Cape Province, South Africa.

The study was guided by a cross-sectional research design and underpinned by quantitative methodology. A self-administered questionnaires was used to collect data from female students selected using a multi-stage sampling method. Data was analysed using SPSS version 24. Data was collected from 1266 female students.

The study revealed that half of the students had good knowledge and attitude towards safe abortion while a significant proportion had poor knowledge and unfavourable attitude. Findings show that having ever heard about abortion, residence, age of students, and family education were predictors of knowledge on safe abortion. In addition, age and residents were predictors of students’ attitude towards abortion.

In conclusion, there is need for health communication and education programmes to address the subject of safe abortion among students. Government should provide youth-friendly reproductive services to the rural areas of South Africa.

**Background**

Abortion is “understood as putting to an end of a foetus in the uterus using surgery or taking medicines”\(^2\). Abortion is carried out because the pregnancy is not desired or there are complications related to the uterus or foetus or other parts of the mother during pregnancy \(22, 26\). Unsafe abortion is therefore is the termination of pregnancy carried out by a person lacking the standardised skills in a place that does not meet minimal medical standards \(22, 23\). Therefore, unsafe abortion includes: the termination of the foetus in the uterus carried out by a personnel who is not trained in unhealthy conditions; those self-induced by putting in foreign objects into her uterus or consuming deadly products; and those initiated by physical trauma” to a woman’s abdomen \(22\).

Global statistics “show that 45% of all induced abortions are unsafe \(22\). Out of all unsafe abortions, one third were performed under the least safe conditions, namely, by untrained persons using dangerous and invasive methods. Developing countries bear the burden of 97% of all unsafe abortions \(22\). More than half of all unsafe abortions occur in Asia, most of them in south and central Asia. In Latin American and Africa, the majority, approximately 3 out of 4 of all abortions are unsafe \(26\). In Africa, nearly half of all abortions occur under” the least safe circumstances \(2\).

Evidence “shows that unsafe abortion is a leading but preventable cause of maternal deaths and morbidities \(10, 27\). It leads women’s physical and mental health complications and social and financial burdens, communities and health” systems. This makes “lack of access to safe, timely, affordable and respectful abortion care a critical public health and human rights issue. In South Africa, abortion is legal since 1996, however over half of abortions are still estimated to be unsafe \(8\). National maternal death reports, which notably no longer distinguish abortion from spontaneous miscarriage, suggest mortality from ‘miscarriage/abortion’ surged 62% between 2002–2004 and 2011–2013 \(9\). Further, women who
are of lower socioeconomic status are at higher risk of unsafe abortion and its health consequences than women who are more affluent. Barriers to safe abortion care including fear of discrimination or confidentiality breech, abuse and neglect by health workers, a dearth of abortion providers, waiting lists, gestational limits, long distances, insufficient knowledge about abortion laws and financial constraints (1, 2, 5, 11). Many researchers attribute these barriers to weaknesses of the South African health system generally and to abortion stigma specifically — a social process that ascribes negative attributes to women who access abortion care, to abortion providers and to others associated with abortion (2, 3, 6, 27).

Students “fall within the age category of people at high risk of unsafe abortion, and there is a dearth of published studies on the knowledge, attitude, and predictors of safe abortion among university students in South Africa. Therefore, this study will investigate into the knowledge, attitude, and predictors of safe abortion among female students in the Eastern Cape Province, South Africa. Thus, this study may inform the development of reproductive health guidelines and enhance education and communication health programmes to enhance safe abortions among” students.

**Methods**

**Research design**

A cross-sectional “research design was used to guide the study among female students in public universities in Eastern Cape Province, South Africa. A cross-sectional 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). A cross-sectional research design makes snapshots of the populations about which they gather data. 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 data (4). 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 knowledge, attitude, and predictors of safe abortion among female students using numerical data that is transformed into statistics. These statistics helped to understand the research problem under study. Quantitative research methodology was also used because many researchers agree that quantitative methodology is the best when it comes to measuring opinions, views, behaviours, attitudes, practices, and other measurable variables (21). Evidence shows that quantitative research methodology is effective in uncovering and formulating facts (4). This study employed quantitative methodology to measure knowledge, attitude, and predictors of safe abortion
among female students. The method was also used because it is helpful in conducting structured studies and collecting information that is “generalisable.

**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 using proportional sampling technique 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 female students. One thousand two hundred sixty six (1266) students successfully” completed the questionnaire.

**Data collection instruments**

Data were “collected using a questionnaire. To achieve the aim of the study and high response rate, six thousand 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, knowledge, and attitude towards safe abortion. The questionnaire was reviewed by” experts in survey research 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 six questionnaires were collected. The total number of 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 1266 questionnaires expressing more than one hundred per cent response rate. It was easy to conduct the study because the researcher was a senior lecturer at one of the universities under study and has expertise in health communication and research methodology studies. The researcher’s experience in health communication and research methodology span more than twelve years. All completed questionnaires were checked” for completeness by the investigator.

**Variables and measurements**
The study investigated into the knowledge, attitude, and predictors of safe abortion among female students. Knowledge of students on safe abortion was assessed using eight questions that generated a high internal consistency namely Cronbach's alpha = 0.712. Each of the correct responses was given one point while zero was given for the incorrect response based on students' responses. Students who scored less than 60% in the knowledge questions were reported as having poor knowledge and students who scored higher than or equal to 60% were reported as having good knowledge.

Students' attitude towards safe abortion was calculated out of eleven questions that generated a high internal consistency namely Cronbach's alpha = 0.706. The study employed a five-point Likert scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; and 5 = strongly agree; and then categorised as “agree” (strongly agree and agree) and “disagree” (strongly disagree, disagree, and neutral). All students who scored less than the mean score were reported as having unfavourable attitudes and all students who scored greater than or equal to the mean were reported as possessing favourable attitudes towards safe abortion. Independent variables in the study were sex, age, marital relationship, place of resident, financial support from the family, and year of study.

**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.

**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 safe abortion 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 safe abortion.

**Demographic Characteristics Of The Respondents**

The study involved 1266 respondents with a response rate of more than hundred per cent. The study’s average age was 21.8 years (SD ± 2.98). Findings indicate that 778 (61.5%) of students were single, and
676 (53.4%) had parents who were both illiterate. The study found that 990 (78.3%) of the students lived in urban areas before they joined the university” as shown in Table 1.

Table 1

Socio-demographics characteristics of students
| Items                      | Frequency | Percentage |
|---------------------------|-----------|------------|
| **Age group**             |           |            |
| 18 years to 19 years      | 176       | 11.7       |
| 20 years to 24 years      | 820       | 65.9       |
| ≥25 years                 | 270       | 22.4       |
| **Relationship status**   |           |            |
| Never been in a relationship | 778  | 61.6       |
| Not in a relationship at the moment | 162  | 12.9       |
| In a relationship but not married | 160  | 12.7       |
| Married                   | 166       | 13.2       |
| **Family education**      |           |            |
| They are both illiterate  | 676       | 53.5       |
| One of my parents is literate and the other one illiterate | 428 | 33.9   |
| They are both literate    | 162       | 12.9       |
| **Area of residence**     |           |            |
| Urban                     | 376       | 21.9       |
| Rural                     | 990       | 78.2       |
| **University**            |           |            |
| Nelson Mandela University | 424       | 33.6       |
| University of Fort Hare   | 286       | 22.7       |
| Rhodes University         | 276       | 21.9       |
| Walter Sisulu University  | 280       | 22.2       |
### Students’ knowledge of safe abortion

Results show “that 866 (68.5%) of the students in this study had knowledge on safe abortion. Most of the students 1218 (96.3%) had heard about safe abortion out of which 966 (79.4%) heard about safe abortion from health institutions. Results indicate that 1196 (80.4%) of the students reported unsafe abortion as a major health problem, and 904 (71.5%) reported that South Africa has laws on abortion. The study found that 630 (49.9%) of the students reported hospitals as places they knew performing safe abortion. Results indicate that 752 (59.5%) of all students in the study reported that safe abortion should be carried out up to three months of the pregnancy” as presented in Table 2.

**Table 2**

| Monthly stipend from family | 906 | 71.7 |
|-----------------------------|-----|------|
| <R500                       | 286 | 22.7 |
| R501-R1000                  | 74  | 5.9  |
| Items                                                                 | Frequency | Percentage |
|---------------------------------------------------------------------|-----------|------------|
| Have you ever come across information on methods of abortion?      |           |            |
| Yes                                                                 | 1218      | 96.3       |
| No                                                                  | 48        | 3.8        |
| What is the source of your information on safe abortion?           |           |            |
| Health institution                                                 | 966       | 79.4       |
| Mass media                                                         | 826       | 67.9       |
| Parents                                                            | 432       | 35.6       |
| Other                                                               | 84        | 6.9        |
| Where are safe abortions performed?                                |           |            |
| Health centre                                                      | 246       | 22.7       |
| Home                                                               | 106       | 8.5        |
| Hospital                                                           | 620       | 49.9       |
| Private clinic                                                     | 222       | 17.6       |
| Can safe abortion services help to reduce reproductive health problem women face? |           |            |
| Yes                                                                 | 426       | 33.7       |
| No                                                                  | 568       | 44.9       |
| I do not know                                                      | 272       | 21.6       |
| When is it suitable time to perform safe abortion?                 |           |            |
| Any time during pregnancy                                          | 514       | 40.7       |
| Before pregnancy clocks three months                               | 752       | 59.5       |
| Do you think unsafe abortion is a major health issue in South Africa? |           |            |
| Yes                                                                 | 1016      | 80.4       |
Is abortion legal in South Africa?

|        |        |        |
|--------|--------|--------|
| Yes    | 904    | 71.5   |
| No     | 362    | 28.7   |

What is the reason abortion is legal in South Africa?

| Reason                                                                 |        |        |
|------------------------------------------------------------------------|--------|--------|
| If a woman has physical/mental disabilities                            | 718    | 56.8   |
| If a woman is physically psychologically not ready                      | 910    | 71.9   |
| If one is not financially able to raise the child                       | 984    | 77.8   |
| If pregnancy endangers life of the woman or foetus                      | 528    | 41.8   |
| If pregnancy is due to rape or incest                                  | 652    | 51.5   |
| If the pregnancy is extra-marital                                      | 1032   | 81.6   |
| Not allowed for any reason in South Africa                              | 408    | 32.3   |

Students’ attitudes towards safe abortion

The results “indicate that 722 (57%) of students in the study reported a positive attitude towards safe abortion while 1062 (83.9%) disagreed to the view that elective abortion should be accessible and legal. Most of the students 922 (72.9%) disagreed to the view on the legalisation of safe and voluntary abortion, 870 (68.8%) agreed to the statement that abortion services should be available at health institutions, and 812 (64.2%) of the students agreed to the statement that men should play a role in the decision” of abortion as demonstrated in Table 3.

Table 3

Students’ attitude towards safe abortion
| Items                                                                 | Disagree | Agree |
|----------------------------------------------------------------------|----------|-------|
|                                                                     | N (%)    | N (%) |
| Safe and voluntary abortion should be legal and accessible           | 922      | 344   |
|                                                                     | (72.8)   | (27.3) |
| Elective abortion should be legal and accessible under any circumstance | 1062     | 204   |
|                                                                     | (83.9)   | (16.2) |
| A woman under 18 asking for safe abortion service should be allowed to have the service | 852      | 514   |
|                                                                     | (67.3)   | (32.8) |
| Safe abortion is acceptable if a person has no resources to rise the child | 852      | 404   |
|                                                                     | (68.1)   | (31.9) |
| Safe abortion is acceptable to prevent mother's life or foetal anomaly | 722      | 554   |
|                                                                     | (57.0)   | (43.1) |
| It is acceptable for a woman to choose safe abortion because of rape or incest | 616      | 650   |
|                                                                     | (48.7)   | (51.4) |
| Provision of safe abortion after unwanted pregnancy can save mothers’ life | 542      | 724   |
|                                                                     | (42.8)   | (57.3) |
| Males partners have influence in the decision to have an abortion    | 454      | 812   |
|                                                                     | (35.9)   | (64.2) |
| Health centres and hospitals should provide safe abortion services   | 396      | 870   |
|                                                                     | (31.3)   | (68.8) |
| A woman has the right to terminate her pregnancy                     | 580      | 686   |
|                                                                     | (45.8)   | (54.3) |
| Adolescent students use induced abortions to terminate pregnancies    | 570      | 776   |
|                                                                     | (45.0)   | (55.1) |

**Factors affecting students’ knowledge towards safe abortion**

The “bivariate analysis found students’ marital status, family education, year of study, residence, age, and hearing about abortion to be associated with students’ knowledge of safe abortion. The multivariate analysis found residence, family education, age, and hearing about abortion to be associated with students’ knowledge” of safe abortion.

Students aged 25 “and above were reported to be 2.79 times more likely to have good knowledge of safe abortion than students aged between 18 and 19 (AOR 2.78, 95% CI: 1.17, 7.28). Students from urban areas were 2.42 times more knowledgeable than students from rural areas (AOR 2.43, 95% CI: 1.27, 4.36), and students who had heard about safe abortion were 4.36 times more likely to have good knowledge.
than their counterparts (AOR 4.37, 95% CI: 1.89, 10.84). Students living with both parent who were literate were 3.18 times more likely to have good knowledge of safe abortion than their counterparts (AOR 3.19, 95% CI: 1.33, 7.07) as shown in Table 4.

Table 4

Predictors of students’ knowledge of safe abortion
| Items                  | Knowledge | COR (95% CI)       | AOR (95% CI)       |
|-----------------------|-----------|--------------------|--------------------|
|                       | Good      | Poor               |                    |
| **Age group**         |           |                    |                    |
| 18 to 19              | 126       | 50                 | 1.00 (1.00, 1.00)  | 1.00 (1.00, 1.00) |
| 20 to 24              | 572       | 248                | 1.10 (0.87, 1.49)  | 1.12 (0.95, 2.37) |
| ≥25                   | 168       | 102                | 1.54 (1.07, 2.15)  | 2.79 (1.17, 7.29) |
| **Relationship status** |          |                    |                    |
| Never been in a relationship | 548 | 230               | 1.00 (1.00, 1.00)  | 1.00 (1.00, 1.00) |
| Not in a relationship at the moment | 122 | 40                | 0.79 (0.46, 1.36)  | 0.75 (0.49, 1.39) |
| In a relationship but not married | 90  | 70                | 1.86 (1.14, 3.04)  | 1.88 (0.95, 3.23) |
| Married               | 106       | 60                 | 1.36 (0.83, 2.23)  | 1.69 (0.83, 2.46) |
| **Family education**  |           |                    |                    |
| Both parents are illiterate | 443 | 230               | 1.00 (1.00, 1.00)  | 1.00 (1.00, 1.00) |
| One of my parents is literate and the other one illiterate | 298 | 130               | 0.86 (0.59, 1.23)  | 0.92 (0.69, 1.29) |
| Both of my parents are literate | 122 | 40                | 1.65 (1.11, 3.28)  | 3.19 (1.33, 7.07) |
| **Residence**         |           |                    |                    |
| Rural                 | 684       | 306                | 1.00 (1.00, 1.00)  | 1.00 (1.00, 1.00) |
| Urban                 | 182       | 94                 | 1.16 (0.78, 1.73)  | 2.43 (1.27, 4.36) |
| **Year of study**     |           |                    |                    |
| First year            | 198       | 88                 | 1.00 (1.00, 1.00)  | 1.00 (1.00, 1.00) |
Factors affecting students’ attitude towards safe abortion

Findings in the “bivariate analysis show that marital status, family education, age, religion and residence were associated with students’ attitude towards safe abortion. The multivariate logistic regression included all explanatory variables that were considered in the bivariate analyses. Results show that students’ place of residence and age remained significantly associated with students’ attitude of safe abortion. Results indicate that students coming from urban residents were 1.51 more likely to have a favourable attitude of safe abortion than their counterparts (AOR 1.52, 95% CI: 1.09, 2.22), and students aged between 25 and above were 6.58 times more likely to have a favourable attitude of safe abortion than students” aged between 18-19 (AOR 6.59, 95% CI: 2.72, 11.22) as presented in Table 5.

Table 5

Predictors of students’ attitude towards safe abortion
## Items

|        | Attitude | COR (95% CI)                  | AOR (95% CI)                  |
|--------|----------|-------------------------------|-------------------------------|
|        | Favourable | Unfavourable |                      |                               |
| **Age** |          |                  |                      |                               |
| 18 to 19 | 156       | 20                | 1                        | 1                            |
| 20 to 24 | 438       | 382               | 6.81 (1.44, 10.48)       | 4.69 (0.97, 9.85)            |
| >25     | 128       | 142               | 8.66 (2.14, 12.46)       | 6.59 (2.72, 11.22)           |
| **Relationship status** |          |                  |                      |                               |
| Never been in a relationship | 396       | 382               | 1                        | 1                            |
| Not in a relationship at the moment | 126       | 36                | 0.29 (0.18, 1.04)       | 2.49 (0.75, 4.31)            |
| In a relationship but not married | 88        | 72                | 0.86 (0.53, 1.39)       | 0.79 (0.38, 1.65)            |
| Married | 112       | 54                | 0.51 (0.32, 0.83)       | 1.59 (0.82, 3.15)            |
| **Family education** |          |                  |                      |                               |
| Both illiterate | 368       | 308               | 1                        | 1                            |
| One literate, one illiterate | 252       | 176               | 0.84 (0.59, 1.19)       | 0.95 (0.56, 1.62)            |
| Both parents are literate | 102       | 60                | 0.71 (0.44, 1.17)       | 1.04 (0.59, 1.82)            |
| **Residence** |          |                  |                      |                               |
| Rural | 578       | 412               | 1                        | 1                            |
| Urban | 144       | 132               | 1.29 (0.89, 1.89)       | 1.52 (1.10, 2.22)            |

## Discussion

A study on "the knowledge, attitude, and predictors of safe abortion among female students is important to reduce the burden associated with unsafe abortion. The study found that knowledge of safe abortion
among students was 68.5% (95% CI: 64.9, 72.5). The finding is in agreement with 72.5% reported in a study conducted in Nigeria (24). The finding is also supported by a finding reported in Ethiopia (15) though higher than findings reported by a study in India 44.2% (7). The variance in the findings can be attributed to the fact that this study compared to the study in India conducted among diploma students, this study was conducted among bachelors’ degree students. Bachelor degree students have intense academic programmes with wide range of technical and theoretical knowledge of subjects, and as a result, students tend to have better knowledge in many health issues compared to diploma students. This view is supported by a study in India that found that the increase in students’ year of study also increased students’ level of knowledge (7). The variance in findings can also be explained in relation to differences in the level of access to health information because this study was conducted among students in universities located in urban areas compared to studies in India conducted among students in rural universities highlighting the digital divide or gap between individual students, their families, and geographic areas and different socio-economic levels with regard to both students’ opportunities to access information and communication technologies and to their use of the Internet to acquire knowledge on safe abortion.

Students “aged 25 and above were 2.79 more likely to have adequate knowledge of safe abortion than students aged between 18 and 19 years. The finding can be attributed to the view reported in a study in Nigeria that found an association between students’ increase in age and exposure to information increase (24). In agreement, a study in South Africa and a study in Zambia found that increase in age was associated with heavy internet exposure making students to consume uncensored knowledge including knowledge” on safe abortion (4, 14).

Students from “urban areas reported to be more knowledgeable than students from rural areas. The finding does not come as a surprise because a study in South Africa and a study in Ethiopia found that students from urban areas had easy access to information and educational material because of access to sources including the Internet, newspapers, journals, transcripts from radio or television programmes, leaflets, photographs and other artefacts not readily accessible to students living in rural areas (9, 10). The finding implies that there is gap between the information haves and have-nots. The study in Nigeria reinforces this finding as it found that ‘digital divide’ or the gap between students from urban areas who have access to digital technologies and information on the Internet, and students from rural areas who do not have influenced students’ level of knowledge of safe abortions (24). A study in Kenya supports this view as it reported that poverty, illiteracy, lack of infrastructure, and inadequate government interest and intervention have led to the information have-not situation in rural areas denying students from rural areas knowledge on many issues including” safe abortions (15).

The study “found that students with both parents who were literate were more than three times likely to have good knowledge of safe abortion than students with parents who were both illiterate. The finding is in agreement with a study conducted in India and Argentina (7, 11). The finding is attributed to the view that students with both parents who are literate or have a higher level of formal education let their children know additional things about safe abortion. In agreement, a study in Ethiopia found that
students with educated parents were more knowledgeable than their counterparts because facts, information and skills gained through parents’ own experiences or learnings made it easy for parents to share information with their children on health matters including “safe abortion” (10).

The study “revealed that students who had heard about safe abortion were more likely to have good knowledge than their counterparts. The finding is supported by a study conducted in Ethiopia that reported similar results (10). The explanation to this finding is that the media provides students with information on safe abortion that increases students’ knowledge on safe abortion while a study in South Africa found that youths’ access to youth friendly sexual and reproductive health services or clinics that deliver a comprehensive range of sexual and reproductive health services in ways that are responsive to the specific needs, vulnerabilities and desires of young people increased their knowledge of safe” abortions (18).

The study “indicated that 58% (95% CI: 52.7, 60.9) of students had a positive attitude towards safe abortion. The finding is in agreement with a study conducted in the United States that reported similar results (23). However, the finding in this study is higher than findings in a study conducted in Somalia (40.9%) (19). The difference in findings may be because of diverse cultural beliefs where South Africa is more a secular state that allows diverse lifestyles and legalised safe abortion practices a long time ago while Somalia is religiously conservative country to have just recently allowed safe” abortion.

Students “aged 25 and above were 6.58 times more likely to have a positive attitude towards safe abortion than students aged between 18 and 19. The finding is supported by a study conducted in India that reported similar results (7). The reason for this finding can be attributed to the perspective that as students’ age increases, their familiarity or awareness of facts about abortion also increases making them more knowledgeable than younger students. Besides, it is possible that most of the students aged 25 and above are in their senior level of study therefore increasing their level of awareness and knowledge than those aged between 18 and 19 who are mostly in their junior level” of study.

**Conclusion**

The study “found that more than one third of the students had good knowledge while half had a favourable attitude towards safe abortion. However, a significant number of students had poor knowledge and unfavourable attitude towards safe abortion. Findings show that having ever heard about abortion, residence, age of students, and family education were predictors of knowledge on safe abortion. In addition, age and residents were predictors of students’ attitude towards abortion. There is need for health communication and education programmes to address the subject of safe abortion among students. Health communication and education programmes should target students from rural areas and employ age-specific health communication programmes. There is need for government to provide youth-friendly reproductive services to the rural areas” of South Africa.

**Declarations**
Availability of data and materials

The datasets used and/or analysed during this study are available from the corresponding author on reasonable request.

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Authors’ contributions

The author conceptualised the study and designed data collection tools, wrote the first draft of the manuscript including all diagrams and figures critically reviewed and approved the final manuscript.

Ethics declarations

Ethical clearance was obtained from Research Ethics Committee at Nelson Mandela University. The four universities under study provided gatekeepers’ letters. Consent forms were signed by all participants. 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. Complete information regarding the ethical clearance reference number was available in the research report.

Consent for publication

Not applicable.
Competing interests

The author declares that they have no competing interests.

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