



Effects of Reproductive Health Education Intervention Programme on ... Gayus, W., Et. al. (2026)

Effect Of Reproductive Health Education Intervention Programme on Risky Sexual Behaviours Among Undergraduate Female Students in North-West, Nigeria

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Abstract

Risky sexual behaviours among female undergraduate students in Nigerian universities pose significant threats to reproductive health outcomes, including sexually transmitted infections, unintended pregnancies, and academic disruption. Despite documented prevalence, experimental evidence evaluating interventions remains scarce in Nigeria's North-West Zone. This study examined the effect of a reproductive health education intervention programme on risky sexual behaviours among female undergraduate students in federal universities in the North-West Zone, Nigeria. A quasi-experimental pre-test/post-test design was employed. One hundred female undergraduates were recruited from Ahmadu Bello University, Zaria (experimental group, n=50) and Usmanu Danfodiyo University, Sokoto (control group, n=50) through multistage sampling. The experimental group received a six-week reproductive health education programme, while the control group received a placebo intervention. Data were collected using a validated researcher-developed questionnaire (reliability index = 0.92) and analysed using paired-samples and independent-samples t-tests at a 0.05 significance level. The intervention produced a statistically significant reduction in risky sexual behaviours within the experimental group, with mean scores declining from 2.67 at pre-test to 1.67 at post-test ($t(49) = 23.87, p < 0.001$). Post-intervention comparison revealed significantly lower risky sexual behaviour scores in the experimental group relative to the control group ($M = 1.67$ vs. $2.32; t(98) = 25.74, p < 0.001$). Reproductive health education interventions significantly reduce risky sexual behaviours among female undergraduates. University administrations and policymakers should institutionalize such programmes within tertiary institutions to promote safer sexual practices.

Keywords: Reproductive health education, risky sexual behaviours, female undergraduate students, quasi-experimental study, North-West Nigeria



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Introduction

Risky sexual behaviour, defined as a range of unsafe sexual practices including unprotected intercourse, multiple sexual partnerships, inconsistent contraceptive use, and engagement with sexually explicit content, has emerged as an increasingly prevalent phenomenon among undergraduate students in Nigerian universities (Magaji-Yusuf & Esere, 2022). Although sexual autonomy is a normal dimension of young adult development, risky sexual behaviours pose significant threats to female students, including heightened vulnerability to Sexually Transmitted Infections (STIs), unintended pregnancies, unsafe abortion, and compromised academic performance (Arogundade, 2022). These adverse outcomes align with the global agenda for Sustainable Development Goal (SDG) 3 (good health and well-being), which emphasises improving health outcomes through quality care and preventing avoidable deaths, and SDG 5 (gender equality), which underscores the need to protect women's sexual and reproductive health rights within educational settings. In Nigeria's North-West Zone, the burden of risky sexual behaviour is compounded by socio-cultural norms that discourage open discussion of sexuality, inadequate access to reproductive health services, and pervasive peer pressure and poverty that drive unsafe practices (Akorede et al., 2022). These challenges undermine the implementation of reproductive health education and contribute to low adherence to protective sexual behaviours, with studies documenting that among female undergraduates in Nigerian institutions, up to 28.3% had undergone induced abortion and nearly half had never used contraceptives (Nwankwo & Bankole, 2022). Across Nigerian universities more broadly, risky sexual behaviours manifest through unprotected vaginal, anal, and oral sex, engagement with multiple partners including older male figures, pornography use, and masturbation, often driven by financial pressures, inadequate supervision, peer influence, and exposure to explicit media content (Arogundade, 2022).

Despite the well-documented risks, sexual behaviours among female undergraduates in university settings remain inconsistent with recommended reproductive health practices, creating sustained risks for students' health and academic outcomes. In the North-West Zone, evidence indicates that female undergraduates may possess awareness of reproductive health risks yet demonstrate poor preventive behaviours, including low contraceptive use, inconsistent condom use, and inadequate strategies to reduce the consequences of unsafe sexual activity (Biu et al., 2025). This practice gap has been observed in recurring reports of STIs, unintended pregnancies, pelvic inflammatory diseases, and psychosocial stressors among sexually active female students, suggesting that available health messaging or general awareness campaigns alone may be insufficient to produce durable behavioural change in students' sexual routines (UNESCO, 2021). A feasible and scalable solution is strengthening female undergraduates' competencies through reproductive health education embedded within university health promotion systems, targeting not only knowledge acquisition but also sustained behavioural adoption and responsible sexual decision-making.

Reproductive health education comprises a set of structured instructional practices intended to equip individuals with knowledge and skills to make informed decisions regarding their sexual and reproductive health, foster healthy relationships, and encourage responsible behaviours (WHO, 2023). Because students' behaviours often reflect underlying knowledge, attitudes, and socio-cultural influences, targeted educational strategies are frequently employed to improve adherence to protective reproductive health behaviours, especially where peer pressure, financial constraints, and high social vulnerability contribute to risk-taking (Akorede et al., 2019; Biu et al., 2025). International and national guidance supports education as a core reproductive health intervention component, noting that effective programmes should be competency-based and culturally sensitive



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to influence routine behaviour and reduce adverse reproductive health outcomes, particularly among young women aged 15–24 years who disproportionately bear the burden of new HIV infections globally (WHO, 2022). Evidence from sub-Saharan Africa and comparable university settings confirmed that educational interventions can improve students' reproductive health knowledge and may reduce engagement in high-risk sexual behaviours. For instance, reproductive health programmes in university settings have been associated with significant improvements in students' awareness of STIs, contraceptive options, and the psychosocial consequences of unprotected sexual activity (Harande et al., 2025; Nwankwo & Bankole, 2022). Similarly, educational interventions targeting sexual behaviour have been reported to yield meaningful improvements in knowledge and sexual negotiation skills, supporting training as a pragmatic approach to reducing risky practices in comparable settings (Harande et al., 2025). Collectively, these findings indicate that education can address behavioural gaps in reproductive health practice, providing a rationale for intervention-focused research in settings such as Nigeria's North-West Zone, where risky sexual behaviour and its associated consequences remain prominent (Magaji-Yusuf & Esere, 2022).

While descriptive studies in Nigeria and comparable settings have repeatedly documented suboptimal reproductive health behaviours and persistent risky sexual practices, many investigations primarily assess knowledge, attitudes, and self-reported practices without testing educational interventions capable of producing sustained behavioural change in students' daily lives (Arogundade, 2022). In the North-West Zone, findings that a substantial proportion of female undergraduates remain sexually active under high-risk conditions, alongside reports of serious reproductive health consequences, underscore the urgent need to move beyond problem description toward evaluated solutions (WHO, 2019). Moreover, repeated documentation of adverse outcomes such as STIs, unintended pregnancies, and academic disruption highlights a concerning gap between reproductive health awareness, resource availability, and consistent day-to-day protective behaviour, implying that one-off sensitisation efforts may not be sufficient to ensure safe and healthy sexual routines among high-exposure student populations (UNESCO, 2021). Accordingly, a key research gap is the scarcity of experimental or quasi-experimental studies in federal universities that measure the effectiveness of reproductive health education interventions on female undergraduates' risky sexual behaviours in Nigeria's North-West Zone. This study is novel in its intervention-focused approach by implementing and evaluating a reproductive health education programme within federal universities in the North-West Zone of Nigeria, to determine whether such training can measurably improve protective sexual health behaviours. Therefore, the study objective is to examine the effect of a reproductive health education intervention programme on risky sexual behaviours among female undergraduate students in federal universities in the North-West Zone, Nigeria.

Research Methodology

This study employed a quasi-experimental research design incorporating pre-test and post-test assessments for both the experimental group (EG) and control group (CG). The experimental group participated in a reproductive health education intervention programme, whereas the control group received no intervention. The study was conducted in federal universities in the North-West Zone, Nigeria. The target population comprised female undergraduate students enrolled in Ahmadu Bello University (ABU), Zaria, and Usmanu Danfodiyo University, Sokoto (UDUS), with a combined accessible population of 82,163 students based on the 2019/2020 and 2022/2023 academic session admission records. A total sample of 100 participants was recruited: 50 female undergraduate students from ABU (experimental group) and 50 from UDUS (control group). This sample size is consistent with quasi-experimental research standards and is considered sufficient to detect



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meaningful intervention effects and enhance the generalisability of findings. A multistage sampling procedure was adopted. This included purposive sampling to identify faculties without health-related curricula across both institutions. Homogeneous purposive sampling was then employed to select participants with similar characteristics from the Departments of relevant faculties. Participants were allocated such that ABU served as the experimental site and UDUS as the control site. The selection process minimised selection bias and strengthened internal validity.

Eligible participants were female undergraduate students currently enrolled in the departments of the selected federal universities, provided informed consent, and were available to complete all stages of assessment: pre-test and post-test. Participants were also required to have exhibited risky sexual behaviours as identified during the screening process and to be accessible for the entire duration of the study period. Data were collected using a researcher-developed questionnaire. Responses were measured using a modified four-point Likert rating scale: Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point. A mean aggregate score of ≥ 2.50 was adopted as the benchmark for risky sexual behaviour, while scores below 2.50 indicated positive sexual behaviour. Face, content, and construct validity were established through expert review by specialists in Health Education, Sociology, and Nursing Science. Their feedback was incorporated to refine the final instrument before data collection. A pilot study was conducted at Bayero University, Kano, using 20 female undergraduate students who shared similar characteristics with the target population but were not part of it. The split-half method was employed to assess reliability, and data were analysed using Spearman-Brown's Prophecy Formula, yielding a reliability index of 0.92, indicating excellent reliability. This interpretation is consistent with reliability guidance that values above 0.75 are regarded as excellent.

A reproductive health education intervention manual and lesson plan were developed by the researcher to guide the instructional process. The manual covered: patterns of sexual behaviours among female undergraduates, including masturbation, vaginal, anal, and oral sex; risks and consequences of risky sexual behaviours; STI prevention strategies and correct use of protective measures; decision-making skills for healthy intimate relationships; and core reproductive health behaviours, including STI screening, contraception awareness, and boundary-setting in relationships. Four research assistants were trained to support data collection and intervention delivery. Data collection occurred across three stages: pre-intervention (pre-test), intervention, and post-intervention (post-test). An introductory letter was obtained to facilitate participant consent during data collection. After institutional permissions, pre-test data were obtained from both groups using the questionnaire. During the screening stage, participants were recruited and pre-tested. In the intervention stage, the experimental group received the reproductive health education programme, delivered over six weeks with weekly sessions using lectures, demonstrations, discussions, and practical activities, with instructional materials including projectors, manuals, and lesson plans. The control group received no intervention during the same period. Post-test data were collected immediately after the six-week programme. Pre-test and post-test data were collated for within-group and between-group comparisons. Participation was voluntary, and written informed consent was obtained before enrolment through an introductory letter. Participants were informed about the study objectives, procedures, anticipated benefits and risks, confidentiality protections, and their right to withdraw at any time without penalty. To ensure confidentiality, the copies of the questionnaire were coded without personal identifiers. Data were stored securely and accessible only to the research team.



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Data were analysed using Statistical Package for Social Sciences (SPSS) version 31. Descriptive statistics (frequencies and percentages) summarised participants' demographic characteristics, while means and standard deviations addressed the study's research questions. Inferential analyses were conducted at a 0.05 level of significance. A paired-samples t-test assessed within-group changes in sexual behaviours across assessment time points among participants in the experimental group. An independent-samples t-test compared post-test scores between the experimental and control groups to determine the intervention effect between the two independent groups.

Presentation Results

Table 1: Socio-Demographic Characteristics of the Respondents (n = 100)

Variables	Variable options	Experimental		Control	
		Freq Pre-test	Percentage (%)	Freq Post-test	Percentage (%)
Age	18-22 Years	25	50.0	27	54.0
	23-27 Years	20	40.0	21	42.0
	28 years and above	5	10.0	2	4.0
	Total	50	100	50	100
Mean Age	23.48 ±1.6			22.88 ±2.4	
Level of Study	100 level	5	10.0	3	6.0
	200 level	12	24.0	11	22.0
	300 level	20	40.0	27	54.0
	400 level	13	26.0	9	18.0
	Total	50	100	50	100
Marital Status	Single never married	18	36.0	43	86.0
	Cohabiting	29	58.0	5	10.0
	Married	0	0.00	2	4.0
	Separated/Divorced	3	6.0	0	0
	Total	50	100	50	100
Ethnic group	Hausa	16	32.0	27	54.0
	Yoruba	09	18.0	17	34.0
	Igbo	3	6.0	6	12.0
	Nupe	3	6.0	Nil	Nil
	Idoma	3	6.0	Nil	Nil
	Igbira	5	10.0	Nil	Nil
	Kataf/southern Kaduna	11	22.0	Nil	Nil
	Total	50	100	50	100
	Current place of accommodation	Outside campus (with parents /guardian/relatives)	10	20.0	16
Outside campus (rented apartment)		24	48.0	11	22.0
Hostel on the campus		2	4.0	9	18.0
Outside campus with a boy/girl friend		14	28.0	14	28.0
Total		50	100	50	100
Students' current monthly income	₦10, 000-₦20,000	21	42.0	19	38.0
	₦21,000-₦30,000	11	22.0	18	36.0
	₦31,000-₦40,000	10	20.0	8	16.0
	₦41, 000 and Above	8	16.0	5	10.0
	Total	50	100	50	100



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Parents' average monthly income	₦1, 000-₦10,000	22	44.0	21	42.0
	₦11,000-₦ 20,000	19	38.0	13	26.0
	₦21,000-₦30,000	5	10.0	4	8.0
	₦31,000-₦40,000	4	8.0	12	24.0
Total		50	100	50	100
Parent Occupation	Public/civil servant	29	58.0	16	32.0
	Business/ trading	13	26.0	11	22.0
	Farming	8	16.0	23	46.0
	Total	50	100	50	100

The socio-demographic characteristics of the respondents show some notable similarities and differences between the experimental and control groups. In terms of age distribution, the majority of respondents in both groups were within 18–22 years (50.0% experimental; 54.0% control), followed by those aged 23–27 years (40.0% experimental; 42.0% control), while only a small proportion were 28 years and above, indicating that the sample largely comprised young undergraduates; this is further supported by the mean ages of 23.48 ± 1.6 years for the experimental group and 22.88 ± 2.4 years for the control group. Regarding the level of study, most respondents were in the 300 level (40.0% experimental; 54.0% control). A striking difference is observed in marital status, where a high proportion of the experimental group were cohabiting (58.0%) compared to only 10.0% in the control group, while most control respondents were single (86.0%).

Ethnically, the experimental group was more diverse, with representation from Hausa (32.0%), Yoruba (18.0%), and other minority groups, whereas the control group was dominated by Hausa (54.0%) and Yoruba (34.0%). In terms of accommodation, most experimental respondents lived in rented apartments off-campus (48.0%), whereas a higher proportion of control respondents resided with parents/guardians (32.0%) or in hostels (18.0%), although both groups had equal proportions (28.0%) living with a boyfriend or girlfriend. Income distribution shows that most students in both groups earned between ₦10,000 and ₦20,000 monthly, though the control group had slightly more respondents in the ₦21,000–₦30,000 range. Similarly, parents' income was largely concentrated within ₦1,000–₦20,000 for both groups, though more control respondents reported higher parental income (₦31,000–₦40,000). Also, parental occupation differed, with the majority of experimental respondents' parents being public/civil servants (58.0%), while farming was more common among parents of control respondents (46.0%).

Table 2: Mean Scores of Responses on the Effect of Reproductive Health Education Intervention Programme on the Risky Sexual Behaviours of Female Undergraduate Students in Federal Universities in North West Zone, Nigeria.

S/N	Items	Pre-test		Post-test		Mean Difference
		Mean	Std. Dev.	Mean	Std. Dev.	
1	I engage in sexual intercourse without using protection (e.g., condoms).	2.81	1.01	1.49	0.46	1.32
2	I have had multiple sexual partners within a short period of time.	2.79	1.23	1.58	0.44	1.21
3	I sometimes have sexual intercourse under the influence of alcohol or drugs.	2.65	0.65	1.62	0.53	1.03
4	I find it difficult to insist on condom use during sexual activity.	2.65	1.22	1.59	0.52	1.06

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5	I engage in casual sex with partners I am not in a committed relationship with.	2.71	0.73	1.81	0.66	0.90
6	I have had unplanned sexual encounters.	2.56	0.75	1.87	0.73	0.69
7	I engage in transactional sex (sex in exchange for money, gifts, or favours).	2.63	1.02	1.67	0.72	0.96
8	I do not consistently use contraceptives during sexual activity.	2.58	0.86	1.75	0.46	0.83
Aggregate Mean		2.67	0.86	1.67	0.64	1.00

(Decision Mean = 2.50)

The results presented in Table 2 indicated a substantial reduction in risky sexual behaviours among female undergraduate students after a reproductive health education intervention programme. At the pre-test stage, all item mean scores were above the decision mean of 2.50, with an aggregate mean of 2.67, affirming that risky sexual behaviours such as unprotected sex, multiple sexual partnerships, substance-influenced intercourse, and inconsistent contraceptive use were relatively prevalent among the respondents before the intervention. However, at the post-test stage, all item mean scores dropped below the decision mean, with an aggregate mean of 1.67, demonstrating a marked improvement in behavioural outcomes. The mean differences across all items, ranging from 0.69 to 1.32, reflect notable declines in engagement in these behaviours, with the highest reduction observed in unprotected sexual intercourse (mean difference = 1.32) and multiple sexual partnerships (mean difference = 1.21). These findings confirmed that the intervention programme was effective in increasing awareness, promoting safer sexual practices, and reducing exposure to sexual health risks among the participants.

Table 3: Mean Scores of Response on the Differences Between Experimental and Control Groups on the Risky Sexual Behaviours of Female Undergraduate Students in Federal Universities in North West Zone, Nigeria after Reproductive Health Education Intervention Programme.

S/N	Items	Control		Experimental		Mean Difference
		Mean	Std. Dev.	Mean	Std. Dev.	
1	I engage in sexual intercourse without using protection (e.g., condoms).	2.24	0.23	1.49	0.46	0.75
2	I have had multiple sexual partners within a short period of time.	2.25	1.41	1.58	0.44	0.67
3	I sometimes have sexual intercourse under the influence of alcohol or drugs.	2.24	0.16	1.62	0.53	0.62
4	I find it difficult to insist on condom use during sexual activity.	2.29	0.97	1.59	0.52	0.70
5	I engage in casual sex with partners I am not in a committed relationship with.	2.96	1.06	1.81	0.66	1.15
6	I have had unplanned sexual encounters.	2.29	0.19	1.87	0.73	0.42
7	I engage in transactional sex (sex in exchange for money, gifts, or favours).	2.14	1.03	1.67	0.72	0.47
8	I do not consistently use contraceptives during sexual activity.	2.16	1.05	1.75	0.46	0.41
Aggregate		2.32	0.76	1.67	0.64	0.65

(Decision Mean = 2.50)



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Table 3 shows the mean scores comparing the control and experimental groups on risky sexual behaviours among female undergraduate students after exposure to the reproductive health education intervention programme. The aggregate mean score for the control group (2.32) is notably higher than that of the experimental group (1.67), with a mean difference of 0.65, indicating that students who did not receive the intervention engaged more in risky sexual behaviours than those who participated in the programme. Although both group means fall below the decision mean of 2.50, suggesting a general tendency toward disagreement with risky behaviours, the consistently lower mean scores across all items in the experimental group demonstrate a stronger reduction in such behaviours. Specifically, the largest mean difference is observed in engagement in casual sex (mean difference = 1.15), followed by unprotected sexual intercourse (0.75) and difficulty insisting on condom use (0.70), indicating that the intervention had a substantial impact on improving safer sexual practices and assertiveness. Other areas, such as having multiple sexual partners (0.67), engaging in sex under the influence of substances (0.62), and transactional sex (0.47), also show meaningful reductions. Even the smallest differences, seen in unplanned sexual encounters (0.42) and inconsistent contraceptive use (0.41), still reflect positive behavioural change. The findings affirmed that the reproductive health education intervention programme was effective in reducing risky sexual behaviours among the experimental group compared to the control group.

Table 4: Paired Sample t-test representation of Pretest and Post-test on Reproductive Health Intervention Programme on the Risky Sexual Behaviours of Female Undergraduate Students after the Intervention in Federal Universities in North West Zone, Nigeria.

Risky Sexual Behaviour	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Pretest	50	2.67	0.86				
				1.00	49	23.87	< 0.001
Post-test	50	1.67	0.64				

t (df) = 23.87, p-value < 0.05

The results presented in Table 4 indicate a statistically significant effect of the reproductive health intervention programme on reducing risky sexual behaviours among female undergraduate students in Federal Universities in the North-West Zone, Nigeria. The mean score for risky sexual behaviour decreased markedly from 2.67 at pretest to 1.67 at post-test, yielding a mean difference of 1.00, which reflects a substantial reduction in engagement in such behaviours after the intervention. The paired sample t-test result ($t(49) = 23.87, p < 0.001$) shows that this difference is highly statistically significant, as the p-value is far below the 0.05 threshold. This implies that the observed change in behaviour is unlikely to have occurred by chance and can be attributed to the effect of the intervention programme. Therefore, the reproductive health education intervention was effective in significantly reducing risky sexual behaviours among the participants.

Table 5: Independent t-test Statistics on the Difference in Experimental and Control Groups on Risky Sexual Behaviours among Female Undergraduate Students in Federal Universities of North West Zone, Nigeria, After Reproductive Health Education Intervention Programme

Risky Sexual Behaviour	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Control	50	2.32	0.76				
				0.65	98	25.74	< 0.001
Experimental	50	1.67	0.64				

t (df) = 25.74, p-value < 0.05

Table 5 presents the independent t-test analysis comparing the mean scores of risky sexual behaviours between the experimental and control groups after the reproductive health education



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intervention programme. The results show that the control group (N = 50) had a higher mean score (M = 2.32) compared to the experimental group (N = 50), which recorded a lower mean score (M = 1.67). The mean difference of 0.65 indicates a substantial reduction in risky sexual behaviours among participants exposed to the intervention. The calculated t-value of 25.74 with 98 degrees of freedom is statistically significant at $p < 0.001$, which is far below the 0.05 threshold for significance. This implies that the observed difference in mean scores between the two groups is not due to chance but is attributable to the effect of the reproductive health education intervention. Therefore, the intervention programme was highly effective in reducing risky sexual behaviours among female undergraduate students in the experimental group compared to those in the control group who did not receive the intervention.

Discussion of Findings

The findings of this study revealed a statistically significant reduction in risky sexual behaviours among female undergraduate students after the reproductive health education intervention programme ($t(49) = 23.87, p < 0.001$). The results corroborate the findings of Olaleye (2021) and Olaleye and Ajuwon (2024), whose quasi-experimental studies similarly demonstrated that educational interventions significantly reduced exposure to pornography and risky sexual behaviours among polytechnic students in Oyo and Lagos States. In the same vein, the present finding validates the conclusions of Mansor et al. (2023), whose cluster randomised controlled trial confirmed that a web-based intervention guided by the Prototype Willingness Model significantly reduced the intention and willingness to sext while improving sexual health knowledge and attitudes among diploma students. Furthermore, the present study conforms with the evidence provided by Bailey et al. (2015), whose systematic review of 19 randomised controlled trials established that interactive digital interventions produced moderate to positive effects on sexual health knowledge, self-efficacy, and sexual behaviour among young people aged 13–24 years, thereby supporting the current study's premise that educational interventions can yield meaningful behavioural change among undergraduate students.

The finding that the experimental group recorded a significantly lower mean score in risky sexual behaviours (M = 1.67) compared to the control group (M = 2.32) after the intervention ($t(98) = 25.74, p < 0.001$) also finds consensus with studies that documented associations between social media exposure, pornography consumption, and risky sexual practices among undergraduates, thereby reinforcing the imperative for targeted interventions. Specifically, the current finding aligns with Nnebue et al. (2020), Onasoga et al. (2020), and Dudafa and Titus (2025), all of whom established significant associations between social media use, exposure to sexually explicit content, and risky sexual behaviours among university students across Nigeria, lending justification to the intervention-focused approach adopted in the present study. Similarly, the result supports the positions of Adegboire et al. (2024) and Adegboyega (2019), who recommended health education interventions as remedies to pornography consumption and risky sexual practices among undergraduates, and whose observational findings provide a contextual basis that the current study transforms into measurable behavioural outcomes. Moreover, the present finding conforms with Guo et al. (2023), who reported that exposure to a school-based sexuality curriculum significantly improved sexual and reproductive health knowledge and mitigated risky sexual attitudes and behaviours among university freshmen in China, thus supporting the cross-cultural applicability of educational interventions in reducing sexual health risks. Conversely, the findings of this study stand in disagreement with the conclusions drawn from several cross-sectional and purely descriptive studies that, while identifying the prevalence and correlates of risky sexual behaviour, did not demonstrate the capacity for behavioural



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modification through interventions. The present study contradicts the passive stance of Adinma et al. (2016), Chinedu and Enebe (2023), and Sinha et al. (2022), all of whom described risky sexual behaviours and their socio-demographic correlates without implementing or evaluating any intervention, thereby offering no evidence of the changeability of such behaviours. Similarly, the current finding disputes the sufficiency of the observational approach employed by Owan et al. (2020) and Alade and Aladenika (2023), who merely recommended the introduction of social media education without empirically testing its effect, as the current study demonstrates that mere recommendation without implementation yields no measurable change. Furthermore, the study refutes the implied passivity of Afrashteh et al. (2020) and Kolawole (2020), whose cross-sectional and descriptive designs documented risk factors and consequences of risky sexual behaviour without providing empirical evidence of intervention efficacy, a gap that the present quasi-experimental study effectively addresses by demonstrating statistically significant behavioural modification attributable to the intervention.

The researchers affirmed that reproductive health education intervention is an effective tool for reducing risky sexual behaviours among undergraduate students. The statistically significant pre-test to post-test reduction and the clear differential between experimental and control groups provide empirical support for this position. While cross-sectional studies have been valuable in establishing prevalence and associations, they fall short of demonstrating causality or behavioural change; it is the quasi-experimental design, as employed in this study, that provides the strongest evidence of the intervention's causal efficacy in modifying risky sexual practices.

Conclusion

This study conclusively establishes that a reproductive health education intervention programme significantly reduces risky sexual behaviours among female undergraduate students in Federal Universities in the North-West Zone of Nigeria, as evidenced by a highly significant pre-test to post-test mean reduction (2.67 to 1.67; $t(49) = 23.87$, $p < 0.001$) and a marked difference between experimental and control groups ($t(98) = 25.74$, $p < 0.001$), affirming that interventions are potent mechanisms for promoting safer sexual practices and reducing associated health risks among this population.

Recommendations

It is therefore recommended that

1. University administrations, health educators, and relevant government agencies institutionalise reproductive health education programmes within tertiary institutions to sustain behavioural change;
2. Curriculum planners should integrate sexual and reproductive health education into undergraduate academic programmes;
3. Further studies should explore the long-term retention of behavioural change and the scalability of such interventions across diverse student populations and geopolitical zones in Nigeria.

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