

The Prevalence and Pattern of Risky Sexual Behaviour Among Secondary School Adolescents in Yenagoa Local Government Area.

ABSTRACT

Aim: To determine the prevalence, pattern and socio-demographic factors associated with risky sexual behaviour (RSB) among adolescents in secondary schools in Yenagoa LGA, Bayelsa state.

Study Design: A cross-sectional, analytical study

Place and duration: Yenagoa Local Government Area in Bayelsa state. The study was conducted in March/April 2021.

Methodology: The study utilized self-administered questionnaires among 750 secondary school adolescents selected via multistage sampling. The proportion of adolescents with RSB and the socio-demographic determinants of RSB were analysed using Chi-square test and binary logistic regression with significance level set at p-value=0.05.

Results: Of the 739 responses analysed, the prevalence of RSB was 156 (21.1%) and the mean age at sexual debut was 13.42±2.62 years. All sexually exposed adolescents had an early sexual debut, 23.7% had multiple sexual partners, and 98.1% reported inconsistent use of condoms. Transactional sex and sexual intercourse after alcohol/illicit drug use occurred in 56.4% and 15.4% of them, respectively. The predictors of RSB were attending a public school (AOR:2.046, 95%CI:1.243 to 3.368), peer pressure (AOR:10.451, 95%CI:6.460 to 16.909), difficulty in communicating with mother (AOR:2.050, 95%CI:1.203 to 3.493) and low maternal education (primary:AOR:2.834, 95%CI:1.300 to 6.181; and secondary: AOR:2.067,

95%CI:1.139 to 3.753). However, age below 18years (10-13years: AOR:0.194, 95%CI:0.051 to 0.741 and 14-17years: AOR:0.259, 95% CI:0.081 to 0.832) was protective of RSB.

Conclusion: RSB is high among adolescents attending secondary schools in Yenagoa. Sex education, peer-based programmes and parent-adolescent communications should be encouraged to reduce the prevalence of RSB among adolescents.

Keywords: [risky, sexual, behaviour, adolescents,]

1. INTRODUCTION

Adolescence, a transitional stage of development spanning the ages of 10 to 19 years, is characterized by physical, cognitive and mental changes.¹ The adolescent often demonstrates increasing sexual curiosity and awareness.² This, alongside a desire to sexually experiment, leads to involvement in risky sexual behaviour (RSB), defined as sexual activities that predispose one to contract sexually transmitted infections (STIs) including HIV, and having unwanted pregnancies.^{2,3} Several patterns of risky sexual behaviour that have been identified include early sexual debut, unprotected sexual intercourse, multiple sexual partnerships, transactional sex, and sex under the influence of alcohol and drugs.^{4,5,6} Over the last few decades, with the early onset of puberty and late marriages due to a quest for formal education, adolescents are becoming more involved in premarital sex, often without caution which is a precursor for both unintended pregnancy and STIs.⁷ Early sexual debut is associated with a more than twofold increase in the risk for subsequent risky sexual behaviour.⁸ Young people face barriers to assessing contraception due to laws and policies that restrict access based on age or marital status, health workers' bias, unwillingness to acknowledge adolescents' sexual health needs and their inability to obtain contraceptives due to lack of knowledge and finance.⁷ Many sexually active adolescents also lack self-esteem and are unable to assert themselves or negotiate safe sexual practices with their partners.⁷

Many teenagers in Bayelsa are already sexually exposed and engage in RSB.⁹ The median age for first sexual intercourse in Bayelsa is 16.3 years, the earliest among all the states in the south-south region of the country and many have begun sex by 10 to 11 years of age.^{9,10} The high level of poverty among the inhabitants of Yenagoa that coexist with the massive wealth displayed by politicians and oil workers who are in the habit of enticing young women with their money, worsens the situation.¹¹ Bayelsa state has the highest rate of teenage pregnancy in Southern Nigeria.⁹ This is especially worrisome as many of the unmarried pregnant females opt for criminal abortion and a few who are unable or unwilling to procure abortion go on to deliver their babies with resultant negative effects on their education, health and future economic power.¹¹ This not only causes untold hardship for the adolescent and her family but activates a vicious cycle of poverty for her, the child and the society at large.

This study aimed to provide relevant information on the burden and drivers of risky sexual behaviour in adolescents which is needed for advocacy and policy-making in their sexual and reproductive health.

2. MATERIAL AND METHODS

2.1 Study area and design: This study was a school-based, cross-sectional analytical study conducted between March and April 2022 among secondary school adolescents (10 to 19 years) in Yenagoa Local Government Area (LGA), the capital of Bayelsa State. It is located in the South-South region of Nigeria with a land area of 1,698km and an estimated population of 470,800 (2016 projection from 2006 census).¹² The people speak mainly Ijaw language and English and most of them are civil servants, traders, and subsistent farmers and fishermen.¹² The adolescent population in Bayelsa state was 403,844 (from 2006 census).¹¹ The 2020 adolescent population projection from the 2006 census at an annual growth rate of 3% is 614,635.

2.2 Sample size: Using Fischer's formula for cross-sectional study design and a 10% non-response, a minimum sample size of 735 students was obtained which was approximated to 750. Eligible students were recruited for the study via multistage random sampling.

Comment [T1]: Consider changing th keywords to "prevalence, pattern, risky sexual behaviour, adolescents, Nigeria" to enhance detection by search engines

Comment [T2]: Kindly change all the in text-citations to reference number in brackets e.g. [1] as indicated in the author guidelines of the journal.

Comment [T3]: consider changing it to "mood-enhancing drugs"

Comment [T4]: consider changing it to "reproductive health services"

Comment [T5]: kindly provide data about risky sexual behaviours in other countries and regions of Nigeria

Comment [T6]: Consider changing to "had sexual intercourse"

Comment [T7]: consider rephrasing this term as abortion is legal in some countries

Comment [T8]: Consider including the number of schools surveyed, the tye of school(government-owned or private), location of the schhol (rural, peri-urban or urban)

Comment [T9]: kindly elaborate on how this was done, to enhance possible replication of this study by other researchers

2.3 Inclusion and exclusion criteria: Adolescents attending secondary schools in Yenagoa LGA who gave assent and whose parents/guardians gave consent. Adolescents absent from school on the day of data collection were excluded.

Comment [T10]: Please include the age range of adolescents included in the study as an inclusion criterion

2.4 Study instrument: The study instrument (questionnaire) used for data collection in this study was developed and adapted from the illustrative questionnaire for interview surveys with young people designed by John Cleland for WHO.¹³

Comment [T11]: were visually-challenged, deaf and mentally-unfit individuals excluded from the study?

2.5 Measurement Variables: Adolescents were considered to have RSB if they engaged in at least one of the following: sexual intercourse before the age of 18 years (early sexual debut), multiple sexual partnerships defined as having more than one sexual partner at any time in the past before the survey, inconsistent use of condom which is failure to use a condom during sexual intercourse at any time in the past before the survey, transactional sex, or sexual intercourse after the use of drugs or alcohol.

Comment [T12]: consider changing it to "mood-enhancing drugs"

2.6 Data analysis: Data was analysed using SPSS version 26 software. Categorical data were presented as frequencies and percentages, while continuous data were summarized using appropriate measures of central tendencies (mean or median) and variability (standard deviation or range). Adolescents who engaged in one or more of the highlighted sexual activities were considered as having RSB and constituted the prevalence of risky sexual behaviour among the study population. The proportion of adolescents engaged in each of the sexual activities represented the pattern of RSB. The relationship between the socio-demographic and environmental factors and RSB among adolescents was explored using the Chi-square test. Socio-demographic factors that were associated with adolescents' involvement in risky sexual behaviour were identified using binary logistic regression analysis with level of significance set at P value < 0.05.

3. RESULTS

3.1 Socio-demographic characteristics of respondents

Seven hundred and fifty questionnaires were administered however, 739 were filled giving a response rate of 98.5%. Respondents ranged from 10 to 19 years with a mean age of 14.08 ± 1.86 years. Females constituted 56.3% of the population and the modal class was senior secondary class 2 (SS 2) as shown in Table 1. There was an almost equal distribution of respondents in public (49.3%) and private (50.7%) schools. Most of the respondents were Christians (98.1%). Four hundred and twenty-eight respondents (57.9%) belonged to the richest wealth quintile as determined by the household wealth index. Also, a large percentage of respondents (60.2%) belonged to high socio-economic class.

Table I. Socio-demographic characteristics of respondents

Variables	Frequency (n=739)	Percentage (%)
Age category		
10-13 years(early adolescence)	283	38.3
14- 17 years(mid-adolescence)	437	59.1
18-19yrs(late adolescence)	19	2.6
Sex		
Female	416	56.3
Male	323	43.7
Class		

JSS 1	99	13.4
JSS 2	114	15.4
JSS 3	116	15.7
SSS 1	140	18.9
SSS 2	144	19.5
SSS 3	126	17.1
School type		
Public	364	49.3
Private	375	50.7
School composition		
Co-educational	689	93.2
Same sex	50	6.8
Religion		
Christianity	725	98.1
Islam	9	1.2
Others	5	0.7
Wealth index		
Richest	428	57.9
Richer	194	26.3
Middle	94	12.7
Poorer	20	2.7
Poorest	3	0.4

3.2 Family structure and bond: The majority of the respondent's parents were married (76.5%) as shown in Table II. Many of the respondents (71.3%) lived in the same household with both parents. More than half of the respondents (58%) found it easy to talk with their fathers however, only about 10% could often discuss sex-related issues with their fathers. On the other hand, 83.4% of the respondents could communicate easily with their mothers and 24.2% of them could often speak with their mothers about issues related to sex as reflected in Table II.

Table II: Family structure and bond

Variables	Frequency	Percentage (%)
Marital status of parents		
Married	565	76.5
single/divorced	174	23.5
Living with parents		
Both parents	527	71.3
One parent	160	21.7
Neither parent	52	7.0
Ease of talking with father		
Very easy	224	30.3
Easy	205	27.7
Difficult	193	26.1
Very difficult	81	11.0
Not at all	36	4.9
Frequency of discussing sex-related issues with father		
Often	75	10.1
Occasionally	107	14.5
Never	557	75.4
Ease of talking with mother		
Very easy	410	55.5
Easy	206	27.9
Difficult	68	9.2
Very difficult	37	5.0
Not at all	18	2.4
Frequency of discussing sex-related issues with mother		
Often		
Occasionally	179	24.2
Never	190	25.7

Comment [T13]: Kindly edit the data presented here appropriately

Comment [T14]:

3.3 Prevalence and Pattern of Risky Sexual Behaviour

The prevalence of RSB among the respondents was 21.1%. All one hundred and fifty-six sexually exposed respondents (100%) had an early sexual debut, 153 (98.1%) reported inconsistent use of condoms / unprotected sexual intercourse and 88 (56.4%) engaged in transactional sex. Also, multiple sexual partnerships and sexual intercourse after the use of alcohol/drugs were noted in 37 (23.7%) and 24 (15.4%) of the sexually exposed respondents respectively as shown in Table III. Except for sex after the use of alcohol/illicit drugs, the various patterns of RSB were more prevalent in males however this was only statistically significant for multiple sexual partnerships.

Table III: Association between pattern of risky sexual behaviour and gender

Pattern of RSB	Yes n (%)	No n (%)	Total n (%)	P-value	χ^2
Gender	Early sexual debut				
Male	72 (22.3)	251 (77.7)	323 (100.0)	0.488	0.481
Female	84 (20.2)	332 (79.8)	416 (100.0)		
Total	156 (21.1)	583 (78.9)	739 (100.0)		
	Unprotected sex/inconsistent condom use				
Male	70 (21.7)	253 (78.3)	323 (100.0)	0.584	0.328
Female	83 (20.0)	333 (80.0)	416 (100.0)		
Total	153 (20.7)	586 (79.3)	739 (100.0)		
	Transactional sex				
Male	38 (43.2)	285 (56.8)	323 (100.0)	0.916	0.011
Female	50 (12.0)	366 (88.0)	416 (100.0)		
Total	88 (11.9)	651 (88.1)	739 (100.0)		
	Multiple sexual partnership				
Male	23 (7.1)	300 (92.9)	323 (100.0)	0.020*	5.391
Female	14 (3.4)	402 (96.6)	416 (100.0)		
Total	37 (5.0)	702 (95)	739 (100.0)		
	Sex after use of illicit drug/alcohol				
Male	10 (3.1)	313 (96.9)	323 (100.0)	0.838	0.420
Female	14 (3.4)	402 (96.6)	416 (100.0)		
Total	24 (3.2)	715 (96.8)	739 (100.0)		

*statistically significant.

3.4. Mean age at sexual debut and gender.

The mean and modal ages at sexual debut were 13.42 \pm 2.62 years and 15 years respectively. Also, the mean ages at sexual debut for males and females were 13.64yrs \pm 2.43 and 13.24yrs \pm 2.77 respectively as seen in the table and the difference was not statistically significant as seen in table IV.

Table IV: Association between mean age at sexual debut and gender

Variables	Male N=72(%)	Female N=84(%)	Total N=156	T	P-value	95% CI
Mean age at sexual debut	13.64 \pm 2.77	13.24 \pm 2.77	13.42 \pm 2.62	0.954	0.342	-0.429-1.231
Median (range) at	14.00 (5.00-	14.00 (5.00-	14.00 (5.00-			

Comment [T15]: Consider including the number/proportion of sexually-active, or exposed participants

Comment [T16]: consider including the absolute number which made up 21.1%

Comment [T17]: consider changing it to "mood-enhancing drugs"

Comment [T18]: The P values should be expressed to 2 digits whether or not it is statistically significant except when it is < 0.001 as indicated in the author guidelines of the journal.

Comment [T19]: The P values should be expressed to 2 digits whether or not it is statistically significant except when it is < 0.001 as indicated in the author guidelines of the journal.

sexual debut 17.00) 17.00) 17.00)

3.5. Factors associated with risky sexual behaviour among respondents

3.5.1 Association between socio-demographic factors and RSB

The association between socio-demographic factors and RSB is shown in Table V. Most of the respondents who practiced RSB were in their late adolescence (63.2%) while the early adolescence group had the least number (13.1%) and the difference was statistically significant ($P < 0.001$). Also, the class with the highest number of respondents who engaged in RSB were SS2 (27.8%), followed by SS3 (27.0%) and the least was the JS 3 class (13.8%). This difference was statistically significant ($P < 0.04$). A larger number of students who had RSB were in public schools (28.3%) compared to private schools (14.1%) and the difference was statistically significant ($P < 0.001$). Similarly, co-educational schools had more respondents who engaged in RSB (22.1%) than same-sex schools (8.0%) and this was statistically significant ($P = 0.019$).

The majority of the respondents who had RSB had poor religious attendance with RSB being highest among those that attended religious activities once monthly (56.3%), followed by once yearly and never at 33.3% each. RSB was least among those who attended religious activity once weekly (18.7%), and this difference was statistically significant. Also, RSB was significantly higher among respondents who engaged in RSB due to perceived pressure to have sex. ($P < 0.001$).

Table V: Association between socio-demographic characteristics and RSB.

Variables	RSB present n (%)	RSB absent n (%)	Total n (%)	χ^2	P-value
Age category					
10-13yrs (early adolescence)	37 (13.1)	246 (86.9)	283 (100.0)	30.885 ^a	0.000*
14-17yrs (mid adolescence)	107 (24.5)	330 (75.5)	437 (100.0)		
18-19yrs (late adolescence)	12 (63.2)	7 (36.8)	19 (100.0)		
Sex				0.481	0.488
Male	72 (22.3)	251 (77.7)	323 (100.0)		
Female	84 (20.2)	332 (79.8)	416 (100.0)		
Class				11.645	0.040*
JSS 1	20 (20.2)	79 (79.8)	99 (100.0)		
JSS 2	20 (17.5)	94 (82.4)	114 (100.0)		
JSS 3	16 (13.8)	100 (86.2)	116 (100.0)		
SSS 1	26 (18.6)	114 (81.4)	140 (100.0)		
SSS 2	40 (27.8)	104 (72.2)	144 (100.0)		
SSS 3	34 (27.0)	92 (73.0)	126 (100.0)		
School type				22.249	0.000*
Public	103 (28.3)	261 (71.7)	364 (100.0)		
Private	53 (14.1)	322 (85.9)	375 (100.0)		
School composition				5.534 ^a	0.019*
Co-educational	152 (22.1)	537 (77.9)	689 (100.0)		
Same sex	4 (8.0)	46 (92.0)	50 (100.0)		
Religion				1.212 ^a	0.577
Christianity	152 (21.0)	573 (79.0)	725 (100.0)		
Islam	3 (33.3)	6 (66.7)	9 (100.0)		
Others	1 (20.0)	4 (80.0)	5 (100.0)		
Religious attendance				13.199 ^a	0.007*
Everyday	70 (21.7)	253 (78.3)	323 (100.0)		
Once weekly	72 (18.7)	313 (81.3)	385 (100.0)		
Once monthly	9 (56.3)	7 (43.8)	16 (100.0)		
Once yearly	1 (33.3)	2 (66.7)	3 (100.0)		
Never	4 (33.3)	8 (66.7)	12 (100.0)		
Pressure to have sex				162.308	0.000*
Yes	82 (62.1)	50 (37.9)	132 (100.0)		
No	74 (12.1)	533 (87.9)	607 (100.0)		

*statistically significant. a- Fisher's Exact used for expected cell count < 5

Comment [T20]: The P values should be expressed to 2 digits whether or not it is statistically significant except when it is < 0.001 as indicated in the author guidelines of the journal.

Comment [T21]: consider changing it to "religious activity attendance"

3.5.2 Association between Parental level of education/socioeconomic status and RSB

Table VI shows the association between parental level of education/socioeconomic status and RSB at the bivariate level. The statistically significant factors include maternal and paternal levels of education, socioeconomic class and wealth quintiles

Table VI: Association between Parental level of education/socioeconomic status and RSB

Variables	RSB present n(%)	RSB absent n(%)	Total n(%)	χ^2	p-value
Level of education of mother					
No formal education	17(26.6)	47(73.4)	64(100.0)	24.015	0.000*
Primary	31(33.0)	63(67.0)	94(100.0)		
Secondary	81(23.6)	262(76.4)	343(100.0)		
Tertiary	27(11.3)	211(88.7)	238(100.0)		
Level of education of father					
No formal education	19(26.8)	52(73.2)	71(100.0)	9.878	0.020*
Primary	33(28.9)	81(71.1)	114(100.0)		
Secondary	56(21.7)	202(78.3)	258(100.0)		
Tertiary	48(16.2)	248(83.8)	296(100.0)		
Socioeconomic class					
High	84 (18.9)	361 (81.1)	445 (100.0)	9.437	0.009*
Middle	45 (29.1)	170 (79.1)	215 (100.0)		
Low	27 (34.2)	52 (65.8)	79 (100.0)		
Wealth index					
Richest	76 (17.8)	352 (82.2)	428 (100.0)	13.394 ^a	0.007*
Richer	41 (21.1)	153 (78.9)	194 (100.0)		
Middle	31(33.0)	63 (67.0)	94 (100.0)		
Poorer	7 (35.0)	13 (65.0)	20 (100.0)		
Poorest	1 (33.3)	2 (66.7)	3 (100.0)		

*statistically significant, a- Fisher's Exact used for expected cell count <5

3.5.3. Association between family dynamics and RSB among respondents

Table VII depicts the association between family dynamics and RSB among respondents. Living with parents and communication with mother were statistically significant determinants of RSB among respondents at the bivariate level.

Table VII: Association between family dynamics and RSB among respondents

Variables	RSB present n (%)	RSB absent n (%)	Total n(%)	χ^2	p-value
Marital status of parents					
Currently married				4.760	0.34
Currently unmarried	109 (19.3)	456 (80.7)	565 (100.0)		
	47 (27.0)	127 (73.0)	174 (100.0)		
Living with parents					

Comment [T22]: Kindly edit the data presented here appropriately

Comment [T23]: Kindly edit the data presented here appropriately

Both parents	97 (18.4)	430 (81.6)	527 (100.0)	11.2001	0.004*
One parent	40 (25.0)	120 (75.0)	160 (100.0)		
Neither parent	19 (36.5)	33 (63.5)	52 (100.0)		

Communication with father

Very easy

Easy	53 (23.7)	171 (76.3)	224 (100.0)	7.759	0.101
Difficult	33 (16.1)	172 (83.9)	205 (100.0)		
Very difficult	38 (19.7)	155 (80.3)	193 (100.0)		
We don't talk	24 (29.6)	57 (70.4)	81 (100.0)		
	8 (22.2)	28 (77.8)	36 (100.0)		

Discussing sex-related matters with father

Often	20 (26.7)	55 (73.3)	75 (100.0)	2.184	0.336
Occasionally	25 (23.4)	82 (76.6)	107 (100.0)		
Never	111 (19.9)	446 (80.1)	557 (100.0)		

Communication with mother

Very easy	71 (17.3)	339 (82.7)	410 (100.0)	32.936	0.000*
Easy	42 (20.4)	164 (79.6)	206 (100.0)		
Difficult	17 (25.0)	51 (75.0)	68 (100.0)		
Very difficult	21 (56.8)	16 (43.2)	37 (100.0)		
We don't talk	5 (27.8)	13 (72.2)	18 (100.0)		

Discussing sex-related matters with mother

Often	34 (19.0)	145 (81.0)	179 (100.0)	5.801	0.055
Occasionally					

Comment [T24]: Kindly edit the data presented here appropriately

Comment [T25]: Kindly edit the data presented here appropriately

Comment [T26]: Kindly edit the data presented here appropriately

Never	31 (16.3)	159 (83.7)	190 (100.0)
	91 (24.6)	279 (75.4)	370 (100.0)

- * statistically significant

3.6. Multivariate analysis

The result of multivariate analysis is shown in Table VIII. Analysis of variables that were statistically significant at the bivariate level showed that respondents within the age categories of 10-13 years and 14-17 years, school type (public or private), mother's educational level, and communication with mother were significant determinants of RSB among respondents. Class of respondent, school composition (mixed or same-sex), attendance to religious activities, father's level of education, marital status of parents, whether the respondent lived with parents and wealth index were no longer significant.

Respondents within the age groups of 10-13 years were less likely to indulge in RSB than those within 18- 19 years of age (AOR= 0.194, p-value 0.017) as shown in Table VIII. Likewise, those within the 14-17 years age category were less likely to practice RSB than those in the 18- 19 years age group (AOR=0.259, p-value 0.023). The odds of occurrence of RSB in adolescent students in public schools was twice that of private schools (AOR=2.046, p-value 0.005).

Adolescents whose mothers had only primary level of education were almost 3 times more likely to practice RSB than those with a tertiary level of education (AOR=2.834, p-value 0.009). Similarly, adolescents whose mothers had a secondary level of education were twice as likely to indulge in RSB as those whose mothers have tertiary education (AOR=2.067, p-value 0.017). The odds of RSB in adolescents who had difficulty communicating with their mothers was twice that of adolescents who had easy communication with their mothers (AOR=2.050, p=0.008), and adolescents who felt pressured by their peers and romantic partners to engage in sexual intercourse were 10 times more likely to practice RSB than those who did not experience any form of pressure (AOR=10.451, p-value 0.000).

Table VIII: Multivariate analysis of factors associated with risky sexual behaviour

Variables (reference category) ^R	Coefficient B	Adjusted odds ratio (AOR)	p-value	95% CI Lower to upper limit
Age category (18-19yrs)^R				
10-13yrs	-1.642	0.194	0.017*	0.051- 0.741
14-17yrs	-1.350	0.259	0.023*	0.081-0.832
Class category (SSS 3)^R				
JSS 1	-0.041	0.960	0.931	0.377-2.444
JSS 2	0.220	1.247	0.632	0.505-3.075
JSS 3	-0.387	0.679	0.372	0.290-1.588
SSS 1	-0.027	0.973	0.941	0.471-2.009
SSS 2	0.213	1.237	0.523	0.644-2.378
School type (Private)^R				
Public	0.716	2.046	0.005*	1.243-3.368
School composition (Mixed)^R				
Same sex	-1.074	0.342	0.083	0.101-1.152
Religious attendance (Never)^R				

Always/Sometimes	0.069	1.071	0.939	0.186-6.170
Level of education of mother				
(tertiary education)^R				
No formal education	0.485	1.625	0.286	0.666-3.964
Primary	1.042	2.834	0.009*	1.300-6.181
Secondary	0.726	2.067	0.017*	1.139-3.753
Level of education of father				
(Tertiary education)^R				
No formal education	0.031	1.032	0.943	0.442- 2.408
Primary	0.265	1.304	0.433	0.672- 2.530
Secondary	-0.224	0.799	0.427	0.459- 1.390
Marital status of parents				
(separated/divorced)^R				
Currently married	-0.308	0.735	0.321	0.400- 1.350
Living with parents				
(Both parent)^R				
With one parent	0.486	1.626	0.115	0.888-2.977
With neither parent	0.700	2.013	0.104	0.866-4.682
Talking with mother (Easy)^k				
Difficult	0.718	2.050	0.008*	1.203-3.493
Peer pressure (No)^k				
Yes	2.347	10.451	0.000*	6.460-16.909
Wealth index (richest)^k				
Poorest	1.258	3.519	0.372	0.223-55.641
Poorer	0.200	1.221	0.738	0.379-3.937
Middle	0.356	1.428	0.297	0.731-2.791
Rich	-0.700	0.625	0.094	0.361-1.083

• * statistically significant. R-reference variable

4. DISCUSSION

Comment [T27]: Consider beginning the discussion with a brief summary of the findings of the study

The prevalence of RSB from this study is comparable to findings in Osun state, Nigeria (19.2%) and Aksum, Ethiopia (19.6%).^{14,15} It is however higher than findings in Ibadan, Nigeria (14%) and North Schewa, Ethiopia (11.4%).^{16,17} These variations are most likely due to differences in defining criteria for RSB and the population studied.

All sexually exposed adolescents in this study had an early sexual debut which is similar to findings by an Ethiopian study, however another Ethiopian study noted a much lower prevalence of 33.3%.^{15,17} The difference in findings can be attributed to a difference in the population sampled; this study like the former studied all adolescents in secondary schools while the latter restricted its study population to younger adolescents in the junior secondary grades, and sexual exposure is known to increase with age.¹⁷ Early sexual debut was commoner in females than in males in this study. This was similarly reported by the Nigerian National Health Survey and a study in Ethiopia.^{9,18} This may be because of the desire of many females for material things which lures them into sex with older men.¹⁸

The high prevalence of unprotected sexual intercourse/ inconsistent use of condom in this study is similar to that reported by in Sierra Leone.¹⁹ However, this is higher than a national prevalence of 63.3–76.7% among unmarried young people using three National Demographic Health Surveys (2008, 2013 and 2018) conducted in Nigeria.²⁰ This is most likely due to differences in definition criteria for inconsistent condom use and the sampled population. It is worth noting that there was an observable increase in the practice of inconsistent condoms across the three surveys with the least in 2008 and the highest in 2018 and the high prevalence in this study may be a reflection of this worrisome trend. This could be the result of an increasing number of teenagers initiating sex earlier in life but lacking the skills, confidence and understanding necessary to practice safe sex.^{7,21}

The prevalence of multiple sexual partnerships in this study is comparable to findings in Ethiopia but lower than findings in Rivers state, Nigeria.^{15,22} More than half of the sexually exposed respondents practiced transactional sex and this is higher than the reported prevalence in similar studies in Ibadan and Bayelsa, Nigeria.^{16,23} This may be attributed to the defining criteria for transactional sex. This study defined it as having ever engaged in transactional sex, unlike the other two studies that limited it to a period of 3 months before their survey. Sexual intercourse after the use of alcohol or illicit drugs occurred in less than a fifth of respondents in this study and this is lower than reports in the United States and in Ibadan, Nigeria.^{5,24} This may be due to environmental and cultural differences in the former and the inclusion of in-school and out-of-school adolescents in the latter to which the out-of-school adolescents contributed a greater proportion to the finding. This study limited its respondents to in-school adolescents which may have accounted for its lower prevalence.

The mean age at sexual debut in this study was 13.42±2.62 years and there was no statistical difference between males and females. This shows that adolescents are initiating sex at earlier ages as also noted by similar studies done at Ekiti and Uyo, Nigeria which is worrisome as it increases their exposure to adverse effects like lifetime multiple sexual partnerships, contracting STIs/HIV, unwanted pregnancy and its consequences.^{25,26}

Age was a significant determinant of RSB in this study as those in the age categories 10-13 years and 14 to 17 years were less likely to engage in RSB than those older than 18. This is consistent with findings in Nigeria and Mozambique.^{21,27} Also students in public schools were twice as likely to practice RSB compared to their counterparts in private schools in this study. This is consistent with findings from another study in Delta state, Nigeria.²⁸ This may be because school authorities frown at such behaviour generally and private schools in particular are stricter in enforcing such rules that will deter RSB among their students.²⁶ Also private schools may engage more in proper sex education of students than public schools.²⁸

Mother-adolescent communication was also significantly associated with RSB. Respondents who had difficulty communicating with their mothers were about 2 times as likely to practice RSB as those who found it easy to do so. This was similarly reported in Ogbomosho, Nigeria and the meta-analysis by Widman et al.^{29,30} Furthermore, Widman et al.³⁰ noted that adolescent communication with the mother correlated positively with safer sex practices. The reason why communication with mothers is significant may be because mothers are usually available and more open to communication as noted by Widman et al.³⁰ Also, mothers were the second most common source of information on sexuality education among respondents in this study. This may further explain why there is an increased risk of RSB among those who found it difficult to communicate with their mothers.

Pressure from peers and romantic partners was statistically significant for RSB in this study as those who reported feeling pressured by friends and partners were more likely to practice RSB. This agrees with findings by from studies in Ethiopia and Nigeria.^{31,32} This is not surprising as during the adolescent period of development, getting the approval of peers to be socially acceptable is an important part of decision-making.²

The mother's level of education was also a statistically significant determinant of RSB in this study as respondents whose mothers had primary and secondary education were more likely to indulge in RSB than those with tertiary education. This

is consistent with findings in Kigali, Rwanda.³³ This might be because mothers with postsecondary educations are better equipped to discuss sexual and reproductive health issues with their teenagers and have more access to trustworthy information on these topics, which helps prevent RSB.³⁴

Finally, several of the respondents who engaged in risky sexual behaviour reported negative outcomes such as teenage pregnancy and/or STI, with a few resorting to abortion. This was similarly reported in another study in Osun, Nigeria.³⁵ This, along with other significant findings in this study, underscores the importance of implementing strategies to reduce risky sexual behaviour among adolescents.

5. CONCLUSION

In conclusion, findings from this study indicate a high prevalence of RSB among in-school adolescents in Yenagoa LGA with adolescents indulging in one or more pattern of RSB. Attending public school, difficulty in communicating with mother, having peer or partner pressure and lower maternal level of education were associated with increased odds of engaging in RSB while being less than 18 years old decreased the odds of practising RSB among adolescents in Yenagoa LGA. Advocating for better communication between parents especially mothers, and their adolescent children, health education and peer based health education programs among adolescents may help in curbing this problem.

DEFINITIONS, ACRONYMS, ABBREVIATIONS

- **Adolescent:** an individual between the ages of 10 and 19 years
- **Risky sexual behavior (RSB):** sexual activities that predispose one to contracting sexually transmitted infections (STIs) including HIV, and unwanted pregnancy.
- **Early sexual debut:** first sexual intercourse before the age of 18 years.
- **Multiple sexual partnership:** having had sexual intercourse with more than one person before the time of the study.
- **Unprotected sexual intercourse:** failing to use a condom during sexual intercourse at any time before the study.
- **Transactional sex or survival sex:** a non-marital, non-commercial sexual relationship motivated by an implicit assumption that sex will be exchanged for material support or other benefits.

CONSENT (WHEREEVER APPLICABLE)

All authors declare that 'written informed consent was obtained from the respondents (18years and above) and parents of respondents (for those less than 18years of age). A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

ETHICAL APPROVAL (WHEREEVER APPLICABLE)

"All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki."

REFERENCES

1. World Health Organisation. Coming Of Age: Adolescent Health. 2020 Accessed 7 Sep 2020. Available: <https://www.who.int/news-room/spotlight/coming-of-age-adolescent-health>.
2. Holland-Hall CM. Adolescent Physical and Social Development. In: Kleigman, Stanton, St Geme, Schor (editors). Nelson Textbook of Pediatrics. 20th edition. Philadelphia: Elsevier; 2016:926–998.
3. Keto T, Tilahun A, Mamo A. Knowledge, attitude and practice towards risky sexual behaviors among secondary and preparatory students of Metu town, South Western Ethiopia. *BMC Public Health*. 2020;14(20):1394-9 <https://doi.org/10.1186/s12889-020-09371-4>
4. Tulloch T, Kaufman M. Adolescent Sexuality. *Paediatrics in Review*. 2013;9(34):29–37. doi:[10.1542/pir.34-1-29](https://doi.org/10.1542/pir.34-1-29)

Comment [T28]: This was not reflected in the results. Kindly include the data in the results

Comment [T29]: was assent obtained from the participants? as no comment was made about this.

Comment [T30]: please state the name of the ethics committee which provided ethical approval

5. Center for Disease Control. Adolescent And School Health: Sexual Risk Behaviour. United State Of America; National Youth Risk Behaviour Survey; 2019. [Updated 2021 Jun 14; Accessed 10 July 2021. Available: <https://www.cdc.gov/healthyyouth/sexualbehaviors/index.htm>
6. UNAIDS, STRIVE. Transactional sex and HIV risk: from analysis to action. Geneva: Joint United Nations Programme on HIV/AIDS and STRIVE 2018. Accessed 10 Oct 2021. Available: https://www.unaids.org/sites/default/files/media_asset/transactional-sex-and-hiv-risk_en.pdf
7. WHO. Adolescent and young adult health Geneva, Switzerland; WHO. 2021. Accessed 1 Mar 2021. Available: <https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions>
8. Yaya S, Bishwajit G. Age at first sexual intercourse and multiple sexual partnerships among women in Nigeria: A cross-sectional analysis. *Front Med*. 2018; 8(5):171-183. DOI:[10.3389/fmed.2018.00171](https://doi.org/10.3389/fmed.2018.00171)
9. National Population Commission (NPC) [Nigeria], ICF. Nigeria Demographic Health Survey 2018. DHS Progr ICF Rockville, Maryland, USA. 2019;748. Accessed 9 Sep 2020. Available: <https://dhsprogram.com/publications/publication-fr359-dhs-final-reports.cfm>.
10. Adeniji F, Barisua N. Youths' Reproductive Health and Risk Perception to Sexually Transmitted Infections in Communities in Bayelsa State, Nigeria: A Qualitative Study. *Int STD Res Rev*. 2017;5(2):1-7.
11. The Nation. Our lives as teenage mothers. 2018 Sep 1. Accessed 1 Oct 2020. Available: <https://thenationonline.ng/our-lives-as-teenage-mothers/>
12. Yenagoa. wikipedia; 2021 Jun 27. Accessed 2021 Jul 28. Available from: <http://en.wikipedia.org/wiki/yenagoa>.
13. Cleland J. Illustrative Questionnaire For Interview-Surveys With Young People. Asking Young People About Sexual and Reproductive Behaviors. Illustrative Core Instruments. Geneva: World Health Organization. Geneva World Heal Organ. 2001;3-55. Accessed 9 Sep 2021. Available: <http://www.who.int/reproductivehealth/topics/adolescence/questionnaire>.
14. Olaoye T, Agbede C. Prevalence and Personal Predictors of Risky Sexual Behaviour Among In-School Adolescents in Ikenne Local Government Area, Ogun State, Nigeria. *Int J Adolesc Med Health*. 2019;34(3):135-147 doi: 10.1515/ijamh-2019-0135. PMID: 31714886.
15. Girmay A, Mariye T. Risky sexual behavior practice and associated factors among secondary and preparatory school students of Aksum town, northern Ethiopia, 2018. *BMC Res Notes*. 2019;12(1):1-7.
16. Adebayo E, Omotade OO, Olumide A. Romantic Relationships and Risky Sexual Behaviour among In-School Adolescents in Ibadan , Nigeria. *Nig J Child Adol Health*. 2018;1(1):46-62 DOI:[10.13140/RG.2.2.34280.96004](https://doi.org/10.13140/RG.2.2.34280.96004)
17. Woldeamanue BT. Risky Sexual Behavior And Associated Factors Among High School Adolescents In North Shewa Zone, Oromia Region, Ethiopia. *PAMJ - One Health*. 2020;2(18):24-36. doi:10.1160/pamj-oh.2020.2.18.24237
18. Yosef T, Nigussie T, Getachew D, Tesfaye M. Prevalence and Factors Associated with Early Sexual Initiation among College Students in Southwest Ethiopia. *Biomed Res Int*. 2020;3:1-6. DOI: [10.1155/2020/8855276](https://doi.org/10.1155/2020/8855276)
19. Ali MM, Merdad L, Bellizzi S. Socioeconomic variations in risky sexual behavior among adolescents in 14 sub-Saharan Africa countries who report ever having had sex. *Int J Equity Health*. 2021;;20(1):11-19. DOI:[10.1186/s12939-020-01352-8](https://doi.org/10.1186/s12939-020-01352-8)
20. Adedini SA, Mobolaji JW, Alabi M, Fatusi AO. Changes in contraceptive and sexual behaviours among unmarried young people in Nigeria : Evidence from nationally representative surveys. *PLoS ONE*. 2021;16(2): e0246309. . DOI: [10.1371/journal.pone.0246309](https://doi.org/10.1371/journal.pone.0246309)
21. Eyam L, Eyam S, Ekpeyong B, Ndep A, Akpan M, Ekanem E. Determinants of risky sexual behavior among secondary school adolescents in cross River State, Nigeria. *Niger J Med*. 2021;30(6):658. DOI:[10.4103/NJM.NJM_126_21](https://doi.org/10.4103/NJM.NJM_126_21)
22. Ogbonna VI, Adeniji F, Iliyasu Z. Risk and protective factors influencing multiple sexual partners among adolescents in Rivers State. *Niger J Med* 2023;32:73-9 DOI: 10.4103/NJM.NJM_132_22
23. Ebuenyi ID, Chikezie UE, Nwoke EA, Ebuenyi ID, Chikezie UE. Psychosocial correlates of risky sexual behaviour amongst students in Niger Delta University, Bayelsa. *Pan African Medical Journal*. 2021;38(7):27312-22 doi:10.11604/pamj.2021.38.7.27312
24. Arasi O, Ajuwon A. Use of sachet alcohol and sexual behaviour among adolescents in Ibadan, Nigeria. *Afr Health Sci*. 2020;20(1):14-27.
25. Durowade AK, Babatunde OA, Omokanye LO, Elegbede OE, Ayodele LM, Adewoye KR et al. Early Sexual Debut: Prevalence And Risk Factors Among Secondary School Students In Ido-Ekiti, Ekiti State, South-West, Nigeria. *Afr Health Sci*.2017;17(3):614-622.
26. Johnson OE, Bassey BA. Sexual practices among senior students in private secondary schools in Uyo, Southern Nigeria. *Afr J Reprod Health*. 2019;23(4):46-62. DOI: [10.29063/ajrh2019/v23i4.6](https://doi.org/10.29063/ajrh2019/v23i4.6)
27. Pengpid S, Peltzer K. Sexual risk behaviour and its correlates among adolescents in Mozambique: results from a national school survey in 2015. *SAHARA J*. 2021;18(1):26-32.
28. Akpobome E, Moore BM, Anyiam FE. A Comparative Study of Selected Risky Behaviours among Adolescents of Private and Public Secondary Schools in Ughelli, Delta State, Nigeria. *Asian J Med Heal*. 2018;13(1):1-12.

29. Oluyemi JA., Yinusa MA, Abdullateef R., Kehinde K, Adejoke J. Parental influence on adolescent sexual behaviour among secondary school students in Ogbomosho. *Afri. J. SocWork* 2017;7(1):37-43
30. Widman L, Choukas-Bradley S, Noar SM, Nesi J, Garret K. Adolescent sexual communication and adolescent safer sex behaviour: A meta-analysis. *JAMA Pediatr.* 2016;170(1):52-61
31. Desale AY, Argaw MD, Yalew AW . Prevalence and Associated Factors of Risky Sexual Behaviours Among in-School Youth in Lalibela Town , North Wollo Zone , Amhara Regional State , Ethiopia : A Cross-Sectional Study Desig. *Sci J Pub Health.* 2016; 4(1): 57-64
32. Olajide FO, Olajide AO, Olowookere SA, Omisore AG. Factors associated with inconsistent condom use and multiple sexual partners among adolescents in South Western Nigeria. *Afri J Med Med Sci.* 2020;49:447-458.
33. Ndagijimana E, Biracyaza E, Nzayirambaho M. Risky sexual behaviors and their associated factors within high school students from Collège Saint André in Kigali, Rwanda: An institution-based cross-sectional study. *Front. Reprod. Health* 2023;5:1029465. doi: 10.3389/frph.2023.1029465
34. Negeri EL. Assessment of Risky Sexual Behaviors and risk perception among youths in Western Ethiopia: The influences of family and peers: a comparative cross-sectional study. *BMC Public Health* 2014;14:301-15. doi.org/10.1186/1471-2458-14-301
35. Babatunde OS, Sanusi RA. Sexual Behaviours And Experience Of Sexual Coercion Among In- School Female Adolescents In Southwest Nigeria. *medRxiv preprint.* 2019;10:1-23 doi: <https://doi.org/10.1101/19000851>;

UNDER PEER REVIEW