Original Article

Risk and Protective Factors Influencing Multiple Sexual Partners among Adolescents in Rivers State

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Abstract

Introduction: The period of adolescence is characterised by changes and experimentations such as early sexual debut and multiple sexual partners (MSP). That might create issues with sexual and reproductive health that persist throughout one's life such as sexually transmitted infections plus HIV, unsafe abortion, and death. To inform contextualised and culturally appropriate preventive strategies, this study identified the forecasters of MSP among pubescents/adolescents in Rivers State. **Materials and Methods:** Using a cross-sectional research design, and multistaged sampling technique, 671 adolescents were interviewed with structured interviewer-administered questionnaires. Data were analysed using IBM SPSS version 26. Chi-square test analysis was performed to test for association in proportions between explanatory (sociodemographic variables, factors at the individual, peer, family, community, and national domains) and outcome (MSP) variables. The proportion of sexually experienced respondents with MSP was determined and adjusted odd ratios of predictors derived from multivariate logistic regression models. **Results:** Out of the 671 adolescents (10–19 years) surveyed, 53.1% were female, and 29 (4.3%) are married. The median age and the interquartile range were 18.0 years. Nearly half 313 (46.6%) of the respondents were sexually experienced, of which 148 (47.3%) had MSP. After adjusting for covariates, religion, sex, employment, father's education, individual perceptions, peer, family, and community norms predicted MSP ($P < 0.05$). Specifically, respondents with religious affiliations were less likely (adjusted odds ratio [aOR] =0.43, 95% confidence interval [CI]: 0.22–0.87, $P = 0.019$) than nonreligious/catholic respondents to have several sexual partners. Similarly, female adolescents were less likely to have MSP (aOR = 0.57, 95% CI: 0.33–0.98, $P = 0.042$). Relative to those whose fathers have no formal education, respondents whose fathers have secondary (crude odds ratio = 0.48, 95% CI: 0.26–0.83, $P = 0.001$) and tertiary education have lower odds of having MSP. Respondents with higher individual, peer, and community domain scores had at least a threefold raised likelihood of having MSP. **Conclusion:** A large proportion of sexually experienced adolescents have MSP; religious affiliations were shown to be protective and should be encouraged. Employed adolescents and males are more at risk. Gender-appropriate reproductive health actions for adolescents need to be contextualised at different levels.

Keywords: Adolescents, factors influencing, multiple sexual partners, Rivers State

Introduction

According to the World Health Organisation, adolescents are those between the ages of 10 and 19 years who are making the transition from childhood to adulthood. Twenty percent of the world's population, or 1.2 billion people, are adolescents.[1] In sub-Saharan Africa, they make up 23% of the region's population.[2] In Nigeria, adolescents make up 22.3% of the 191, 835, 936 million estimated population.[2,3] It is anticipated that this population would continue to grow, especially in Nigeria, where the total fertility rate is still 5.3.[4]

The HIV and sexually transmitted infections (STIs) epidemic in sub-Saharan Africa is mostly caused by several sexual partners (multiple sexual partners [MSPs]), which have a chronological overlay of sexual partners. MSPs expose sexual partners in people's sexual networks to HIV and other STIs.[5] MSPs are a custom that many young people around the world, especially in Nigeria, engage in according to research.

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According to a multicountry survey of dangerous sexual behaviors among male teens in several developing nations, up to 90% of relationships are sexually risky and involve numerous partners. Given the negative consequences of numerous sexual engagements, knowing the factors that influence why adolescents have several sexual partners are critical to efforts to change this behavior and address the consequences.[5]

Risky reproductive health behaviors among adolescents are a global health challenge.[6] Due to the abundance of unfiltered information, they are exposed to, these risky behaviors are engaged in experimentation and peer pressure.[7] Risky behaviors can be influenced by factors such as age, sex,[8] poor risk perception, poor parental monitoring, and inadequate adolescent health information services.[9,10] Risky sexual behavior may lead to a variety of issues, such as unintended pregnancy or abortion, contracting sexually transmitted diseases including HIV and even death. It is estimated that 60% of STI cases occur among persons under the age of 24 with one-fourth being between the ages of 15 and 19 years.[11] In 2016, it was reported that 2.1 million people aged between 10 and 19 years were living with HIV, and 260,000 were newly infected with the virus.[12]

Protective factors identified consist of a person's religious preferences, age, academic expectations, successes, and parental supervision.[10,13] Many studies have looked at the risky sexual behavior among adolescents and young people; a few have looked at protective sexual practices among this subgroup of the population, they have been mostly drawn from nationally based surveys and in-school populations of young people.[13-16]

The prevalence of having sex with many partners was found to be 20.9% overall in a survey of 15,318 in-school adolescents from five sub-Saharan African countries (3204).[17] According to the study, "men adolescents had a considerably higher proportion of intercourse with many partners than female adolescents, P = 0001" across all countries.[17] Cigarette smoking, alcohol use, marijuana usage, and amphetamine use were predictors of multiple partner sexual activity in both males and females. In comparison to male adolescents, female adolescents who used marijuana and cigarettes were significantly more likely to have several partners.[17]

In a study conducted, 57% of female adolescent refugees in Ghana had 4–6 sexual partners in the 12 months preceding the research.[18]

In the past, surveys on adolescents' sexual behaviors done in Nigeria found that over a quarter of male teenagers (15–19) and nearly half of the female adolescents (46.2%) had sexual contact.[19,20] These figures vary from state to state.[20] More worrisome information comes from the Federal Ministry of Education, which indicated that just 40.6% of students who had two or more sexual partners in the previous year and participated in sexual activity reported wearing a condom during their most recent encounter.[20]

The amount of evidence is increasing to suggest that focusing not only on risk actors but also on factors that protect adolescents from harm within and across the various levels would lead to the achievement of greater health benefits.[13,14] Most of the studies have looked at factors mostly the individual (sociodemographic), peer, and a few at the family level there remains a gap in identifying factors at the community and national levels which this study will fill.

Identifying the factors in danger and those that safeguard against MSPs in adolescents is critical for developing effective interventions; once, it is known what influences adolescents in a particular state, policies, and programs can be designed to target pliable/shapable factors.[21] Therefore, it was deemed necessary to identify not only those factors that predispose to harm but also factors that reduce risk.

Objectives

To determine sexual and reproductive health behaviors and identify factors (risk and protective) influencing MSP among adolescents in Rivers State.

Materials and Methods

Study area

The study was conducted in Rivers State, Nigeria. The State is situated in the oil-rich South–South geopolitical zone of the country, one of the most prominent states among the Niger Delta states of the country. Port Harcourt is its capital and largest city. It is bounded by the states of Bayelsa and Delta to the west, Akwa Ibom to the east, Imo, Abia, and Anambra to the north, and the Atlantic Ocean to the south. Rivers Southeast, Rivers West, and Rivers East are the state's three senatorial districts and it has 23 local government areas (LGA), each consisting of wards made up of rural and urban communities. Rivers State has an estimated population of 7,303,924 million as of 2016.[22] About 23% of the population is made up of adolescents.[2]

Study design

A cross-sectional study was conducted among male and female adolescents aged 10–19 years who have resided in Rivers State for at least 1 year.

Sample size estimation

The sample size was derived based on Cochran's formula ($n = \frac{Z^2pq}{e^2}$) for sample size calculation for descriptive study,[23] using an estimate of risky sexual behavior of 31.3% from a similar study done in South–South, Nigeria[9] and providing for a 10% allowance for nonresponse rate. Where n = Sample size to be obtained, Z = The normal curve, 1.96 at 95% confidence interval (CI), e is the margin of precision (5%), P = Prevalence estimates of risky sexual behavior of 31.3%, and $q = 1-p$. Then, a design effect of 1.8 was applied. Therefore, an estimated sample size of 661 was gotten. However, the survey was conducted among 671 adolescent respondents.

Sampling technique

A multistage sampling technique was used to select participants for the study.

Stage 1

Selection of LGAs – Four LGAs were selected from the list of 23 by balloting.

Stage 2

Selection of wards – A list of all the wards in each of the four LGAs was obtained, and one ward was selected from each of the LGAs using a simple random technique (balloting).

Stage 3

Selection of a community – One community was selected from a list of all the communities in each of the wards by balloting. The starting house was randomly selected by spinning a bottle in the middle of the community. Respondents in sequential residential houses and households who meet the eligibility criteria were sampled until 184 participants per ward were achieved.

Study tool

An interviewer-administered questionnaire was inputted into a Kobo Toolbox and used to collect data using android phones. It had three sections.

Reliability and validity

Before the study, the questionnaire was pretested in a different community, and face and content validity were ensured by content experts (supervisors).

Measurement of variables

The variables for the study include independent variables sociodemographic variables, risk, and protective factors at the individual (nine questions), peer (three questions), family (16 questions), community, and national domains (seven questions), and the dependent variables, (number of sexual partners).

Data analysis

Data were checked for completeness, extracted from the Kobo Toolbox in Microsoft Excel version 2016, cleaned, sorted, and then, imported into the IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. (Armonk, NY: IBM Corp) and analysed. Categorical data from the explanatory variables such as the sociodemographic characteristics were presented in the form of frequencies and percentages with results presented in tables. Chi-square (χ^2) test analysis was performed to test for association in proportions between the explanatory variables and the outcome variables (MSP).

Bivariate logistic regression analysis was performed to determine the odds of association of the various factors (risk and protective) and MSP using odds ratio (ORs). All ORs were reported with their 95% CI and corresponding *P* values. Multivariate logistic regression analysis was done where applicable to adjust for the effect of confounding variables. An observation was said to be statistically significant if the "$P \leq 0.05$" was at a 95% CI.

Consent: Appropriate agreement (assent for those <18 years including consent from their parents/guardian and consent for participants 18 years and above) was sought and obtained from participants. Ethical approval: Was sought and obtained from the Research and Ethics Committee of the University of Port Harcourt with the approval number UPH/CEREMAD/REC/MM78/040.

Results

Table 1 shows the sociodemographic attributes of adolescent participants in Rivers State, Nigeria, 2021. As shown, out of the 671 adolescents (10–19 years) surveyed, 53.1% were female, and 29 (4.3%) are married. The median age and the interquartile

Table 1: Sociodemographic characteristics of adolescent respondents in Rivers State, Nigeria, 2021

Characteristics	Frequency (*n*=671), *n* (%)
Residence	
Rural	338 (50.4)
Urban	333 (49.6)
Sex	
Male	315 (46.9)
Female	356 (53.1)
Age group	
10-14	31 (4.6)
15-17	24 (3.6)
18-19	616 (91.8)
Religion	
Catholic	218 (32.5)
Protestant	387 (57.7)
Muslim	40 (6.0)
None	26 (3.9)
Marital status	
Single	642 (95.7)
Ever married	29 (4.3)
Education	
No formal	56 (8.4)
Primary	161 (24.0)
Junior secondary	213 (31.7)
Senior secondary	215 (32.0)
Postsecondary	26 (3.9)
Current school attendance	
Yes	267 (39.8)
No	404 (60.2)
Currently working for pay	
Yes	228 (34.0)
No	443 (66.0)
Resident	
With both parents	245 (36.5)
With a single parent	166 (24.7)
With relatives	168 (25.0)
With others	32 (4.8)
Alone/self	60 (8.9)

range were 18.0 years. The age category 10–14 years made up 4.6%, whereas the age category 15–17 years made up 3.6%, and those 18–19 years were 616 (91.8%). About 338 (50.4%) lived in places described as rural. For the level of education completed, 215 (32.0%) had senior secondary education, whereas 56 (8.3%) had no education. For religion, 387 (57.7%) were protestants, whereas 218 (32.5%) were Catholics. Thirty-four percent (34%, 228) were currently working for pay. Those currently attending school were 267 (39.8%), for living arrangements, living with both parents is 245 (36.5%), a single parent 166 (24.7%), relatives 168 (25.0%), others 32 (4.8%), and self 60 (8.9%).

Table 2 shows that nearly half 313 (46.6%) of the respondents were sexually experienced, of which 148 (47.3%) had MSP (≥2).

As shown in Table 3, at the Chi-square level, the sociodemographic factors influencing MSP among adolescents in Rivers State were sex, religion, working for pay, and the educational level of fathers.

For sex, a greater proportion of males had MSP (71, 55.9%) than females (77, 41.4%), ($\chi^2 = 6.37$, $P < 0.01$). A greater proportion of those currently working for pay had MSP 93 (58.9%) than those not working for pay 55 (35.5%), ($\chi^2 = 17.15$, $P < 0.001$). A greater proportion of those whose fathers have lower levels of education had MSP 46 (59.0%) compared to those who had postsecondary 29 (50.9%) and secondary/grade II Teacher's education 83 (43.7%), ($\chi^2 = 7.38$, $P < 0.03$).

As shown in Table 4**,** statistically significant explanatory variables in the Chi-square test of association [Table 3] were included for the bivariate logistic regression. Sex, religion, currently working for pay, and the educational level of the father were associated with MSP.

The study shows lower odds of having MSP among female adolescents compared to male adolescents (adjusted odds ratio [aOR] =0.57, 95% CI: 0.33–0.98, $P = 0.042$), among those with religious affiliations compared to those with none. There is a higher odds of having MSP among adolescents working for pay (aOR = 2.59, 95% CI: 1.51–4.45, $P = 0.001$) than those who are not working.

Furthermore, the study shows lower odds of having MSP among adolescents whose fathers have secondary/grade II teacher's education (aOR = 0.43, 95% CI: 0.22–0.87, $P = 0.019$), compared to those with primary or lower education.

As shown in Table 5, respondents with higher individual, peer, and community domain scores had at least a three-fold increased likelihood of having MSP, whereas those with high family domain scores had nearly a twofold increased likelihood of having MSP.

Table 2: Distribution of sexual activity of adolescents in Rivers State, Nigeria

Variables	Frequency ($n=671$), *n* (%)
Ever had sex	
Yes	313 (46.6)
No	358 (53.4)
Number of sexual partners ever n=313	
1	165 (52.7)
≥2	148 (47.3)
Number of sexual partners in the past 3 months	
1	141 (21.0)
2	51 (7.6)
3	7 (1.0)
≥4	4 (0.6)
Have had sex but not in the past 3 months	112 (16.7)
Have never had sex	356 (53.1)

Discussion

The study set out to determine the sexual and reproductive health behaviors (sexual experience and MSP) and predictors of MSP among adolescents in Rivers State. It determined the factors (risk and protective) influencing MSP among adolescents in Rivers State. It showed that nearly half of the respondents were sexually experienced, of which almost half had MSP. MSPs were more common among males than females. The study findings are in tandem with a similar study in South–South Nigeria (Cross Rivers) which shows that the prevalence of sexual experience was 41.5%,[24] and more common in males.[17]

The proportion of sexually experienced adolescents with MSP in this study is higher than reported in some other Nigerian studies.[5,25] A study done in Southwest Nigeria reported that 15.9% had MSP, and another Nigerian study revealed a prevalence of several sexual partnerships among adolescents as 19%.[5] The observed disparity could be because Rivers State is an oil-rich state and having an influx of expatriates and oil rig workers will make it naturally more cosmopolitan and industrialised than most Southwestern States. It may also be linked to cultural differences in early independence across the Southern, and other parts of Nigeria.

The proportion of adolescents with MSPs in this study is also higher than in a multiregional (Asia, African American, Hispanic) study which showed 30%[26] whereas, in a study among US adolescents, the prevalence of sexual experience was above 63%, whereas that of MSP were, 35% of males and 15% of females.[27]

Several background characteristics were predictive of MSPs. The predictors of MSPs were religion, sex, working for pay, educational level of fathers, individual perceptions, peer behavior, family, and community norms.

Specifically, respondents with religious affiliations were less likely to have MSP compared to none. Similarly, females were less likely to have MSP compared to males. Further, relative to those whose fathers have no formal education/primary education, respondents whose fathers have secondary were less likely to have MSP. Furthermore, employed respondents

Table 3: The sociodemographic factors influencing multiple sexual partners among adolescents in Rivers State

Variables	Multiple sexual partners (frequency) (n=313)		Total, n (%)	χ^2 (P)
	Yes, n (%)	No, n (%)		
Age				
15-19	145 (47.4)	161 (52.6)	306 (100.0)	0.81 (0.06)
10-14	3 (42.9)	4 (57.1)	7 (100.0)	
Sex				
Female	77 (41.4)	109 (58.6)	186 (100.0)	6.37 (0.01)*
Male	71 (55.9)	56 (44.1)	127 (100.0)	
Religion				
Catholic	42 (44.2)	53 (55.8)	95 (100.0)	8.84 (0.31)*
Protestants	84 (46.4)	97 (53.6)	181 (100.0)	
Muslim	10 (43.5)	13 (56.5)	23 (100.0)	
None	12 (85.7)	2 (14.3)	14 (100.0)	
Educational level				
No education/primary	25 (54.3)	21 (45.7)	46 (100.0)	5.18 (0.08)
Secondary	110 (44.4)	138 (55.6)	248 (100.0)	
Tertiary	13 (68.4)	6 (31.6)	19 (100.0)	
Currently attending school				
Yes	51 (52.6)	46 (47.4)	97 (100.0)	1.58 (0.21)
No	97 (44.9)	119 (55.1)	216 (100.0)	
Currently working for pay				
Yes	93 (58.9)	65 (41.1)	158 (100.0)	17.15 (0.001)*
No	55 (35.5)	100 (64.5)	155 (100.0)	
Resides with				
Both parents	29 (41.4)	41 (58.6)	70 (100.0)	3.79 (0.285)
Single parents	41 (47.1)	46 (52.9)	87 (100.0)	
Relatives/others	48 (45.7)	57 (54.3)	105 (100.0)	
Self	30 (58.8	21 (41.2)	51 (100.0)	
Educational level-mother				
Postsecondary	18 (50.0)	18 (50.0)	36 (100.0)	2.67 (0.26)
Secondary/grade II teacher's education	83 (43.7)	107 (56.3)	190 (100.0)	
Lower (primary and lower)	47 (54.0)	40 (46.0)	87 (100.0)	
Educational level-father				
Postsecondary	29 (50.9)	28 (49.1)	57 (100.0)	7.38 (0.03)*
Secondary/grade II teacher's education	73 (41.0)	105 (59.0)	178 (100.0)	
Lower (primary and lower)	46 (59.0)	32 (41.0)	78 (100.0)	

*Statistically significant (P<0.05)

had an over twofold increased likelihood of having multiple partners. Finally, respondents with higher individual, peer, and community domain scores had at least a threefold increased likelihood of having MSP, whereas those with high family domain scores had nearly a twofold increased likelihood of having MSP.

This study's findings were in tandem with some studies done in Nigeria[5,24] that revealed age, marital status, region and place of residence, household wealth, and ethnicity, which were significantly associated with the practice of MSPs. Another Nigerian study corroborates with findings in this study which showed that fathers' level of education influenced the sexual behaviors of adolescents.[24] It was different from the findings in the US that showed that demographic factors (age) and early age at first intercourse are associated with young people's odds of having had multiple partners.

Conclusion

Nearly half of the respondents were sexually experienced, of which about half had MSP. Factors within the individual, peer, family, and community level domains, as well as education, sex, employment, religion, and fathers' educational level, exert significant influence on adolescents' sexual risk behavior. Employed adolescents and males are more at risk. Having religious affiliations, fathers' educational level, and residing with both parents were shown to be protective factors and should be encouraged. At different stages, contextualising educational interventions in reproductive health is necessary.

Recommendation

Male and female adolescents can benefit from changes in both individual and peer, family, and community/national factors to help them avoid unfavorable health consequences that could result from having MSP. There is a need to contextualise age

Table 4: Bivariate and multivariate results for sociodemographic factors influencing multiple sexual partners among adolescents in Rivers State

Variables	Multiple sexual partners (frequency) (*n*=313)		cOR (95% CI)	*P*	aOR (95% CI)	*P*
	Yes (*n*=148), *n* (%)	No (*n*=165), *n* (%)				
Sex						
Male[R]	71 (55.9)	56 (44.1)	-	-	-	-
Female	77 (41.4)	109 (58.6)	0.56 (0.35-0.87)	0.012*	0.57 (0.33-0.98)	0.042*
Religion						
Catholic	42 (44.2)	53 (55.8)	7.57 (1.61-35.7)	0.011	0.17 (0.03-0.97)	0.046
Protestants	84 (46.4)	97 (53.6)	6.93 (1.51-31.8)	0.013	0.16 (0.03-0.90)	0.038
Muslim	10 (43.5)	13 (56.5)	7.80 (1.41-43.1)	0.018	0.12 (0.33-0.98)	0.039
None[R]	12 (85.7)	2 (14.3)	-	-	-	-
Currently working for pay						
No[R]	55 (35.5)	100 (64.5)	-	-	-	-
Yes	93 (58.9)	65 (41.1)	2.60 (1.65-4.12)	0.001*	2.59 (1.51-4.45)	0.001*
Educational level-father						
Postsecondary	29 (50.9)	28 (49.1)	1.39 (0.69-2.76)	0.35	0.66 (0.26-1.65)	0.373
Secondary/grade II teacher's education	73 (41.0)	105 (59.0)	2.07 (1.20-3.55)	0.009*	0.43 (0.22-0.87)	0.019*
Lower (primary and lower)[R]	46 (59.0)	32 (41.0)	-	-		

*Statistically significant (*P*<0.05), [R]Reference. Logistic regression results. OR: Odds ratio, cOR: Crude OR, aOR: Adjusted OR, CI: Confidence interval

Table 5: Logistic regression model for predictors of multiple sexual partners among adolescents in Rivers State, Nigeria, 2021 (*n*=671)

Characteristics	*n*	The proportion of adolescents with multiple (>1) sexual partners, *n* (%)	*P*	cOR (95% CI)	aOR (95% CI)	*P*
Individual perceptions score (range 2-18)						
Low (0-8)	276	16 (5.8)		Reference	Reference	
High (9-18)	395	132 (33.4)	<0.001*	8.16 (4.72-14.09)	3.01 (1.56-5.80)	0.001*
Peer behaviors and influence score (0-8)						
Low (0-3)	310	21 (6.8)		Reference	Reference	
High (4-8)	361	127 (35.2)	<0.001*	7.47 (4.56-12.23)	3.82 (2.08-7.01)	<0.001*
Family communication score (3-26)						
Low (3-12)	369	70 (19.0)		Reference	Reference	
High (13-26)	302	78 (25.8)	0.033*	1.49 (1.03-2.15)	1.87 (1.11-3.14)	0.018*
Community connection score (0-10)						
Low (0-4)	165	8 (4.9)		Reference	Reference	
High (5-10)	506	140 (27.7)	<0.001*	7.51 (3.59-15.68)	3.59 (1.46-8.83)	0.005*

*Statistically significant (*P*<0.05). OR: Odds ratio, cOR: Crude OR, aOR: Adjusted OR, CI: Confidence interval

and gender-appropriate reproductive health interventions for adolescents.

Authors contributions

Conceptualisation: VIO, FA, IZ. Literature search and Data collection VIO, research assistants. Data analysis: VIO, IZ. Writing of manuscript: VIO. Review of the manuscript: VIO, FA, IZ.

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Conflicts of interest

There are no conflicts of interest.

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