

Transactional sex, Condom use, and Socio-economic Empowerment among Adolescents and Young Adults in Nigeria: Further Evidence from the Nigeria Demographics and Health Survey (2018)

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Abstract

Globally, despite increasing social and economic interventions to achieve better health behaviour outcomes for the younger generation, the pace of engagement of young people in Risky Sexual Behaviour (RSB) is alarming, particularly in developing countries. This could be attributed to low economic empowerment and a lack of access to economic interventions, including those aimed at reducing youth's exposure to RSB. This study examined the association between socioeconomic empowerment and RSB in adolescents and young adults in Nigeria. **We used survey data from the 2018 Nigeria Demographic and Health Survey to better understand RSB (transactional sex and condom use) among a weighted sample of 12,664 unmarried adolescents and young adults in Nigeria.** Descriptive and analytical analyses were performed, including frequency tables, Pearson's chi-square test, and multivariate logistic analysis. The results showed that the risk of engagement in RSB (transactional sex and unprotected sex) was significantly associated with age 20-24 years, particularly when not economically empowered (OR:1.69, CrI:1.04-2.76), residing in communities with average poverty (OR:1.34, CrI:0.69-2.59), including youths in higher education (OR:3.22, CrI:1.20, 8.66), community media (OR:2.04, CrI:1.27-3.26) and, high poverty communities (OR:1.54, CrI:0.94, 2.54). To lessen the negative effects of RSB and its consequences, government and non-governmental organisations should implement adaptation and mitigation strategies to empower youth and discourage them from engaging in transactional sex and non-condom use.

Keywords: Transactional sex, unprotected sex, economic empowerment, adolescent, young adults, Nigeria

Introduction

Young people (YP), defined as those between the ages of 15 and 24 years, constitute 20% of Sub-Saharan Africa's population [1]. In Nigeria, it is estimated that young people make up 15.6% of the total population of the country [2]. Adolescents and young adults, though mostly found in the dependency population, are important members of society [3]. The experiences of developmental changes make adolescents and young adults' victims of risky sexual behaviour (RSB): such as early sexual debut, having multiple sexual partners, unprotected sexual intercourse, and unprotected mouth to genital contacts [4]. RSBs are significant public health concerns because of the risks of sexually transmitted infections (STIs), Human Immunodeficiency Virus (HIV), and the negative social consequences of teenage pregnancy [5,1]. However, there is growing evidence of new HIV infections among the younger generation, as approximately 21% of all new HIV diagnoses were among young people aged 13–24 years [6], including having the highest rates of STIs when compared to any other age group to 41% of the older generation [6].

In Nigeria, despite a low HIV incidence of approximately 1.4% and its sizable population of over 190 million [7], a significant number of people in the nation are HIV positive [7,8]. It spread across the entire region of the country, for instance, 5.6% in Akwa Ibom from the south-south region, 4.9% in Benue, north-central region, 2.7% in Anambra, southeast region, Adamawa in northeast region having 1.3%, while Kaduna in the northwest with 1.0% [7]. **Adolescents and young adults had the largest share of these statistics across the regions, thereby making up a sizeable portion of over 30% of new infections in the nation [7]. New HIV infections, including unwanted pregnancy, unsafe abortion, mental health problems, and depression in Nigeria among youth, have been found to be influenced by household socioeconomic status.** Notwithstanding the progress towards improving youths' health outcomes, including access to condom use, HIV testing, and awareness on adopting a Positive Sexual Behaviour (PSB) in Nigeria over the past decades [9], substantial disparities in **access to sexual and reproductive health services persist** between young and older people in **Nigeria [7]**.

Undoubtedly, the poor utilization of sexual and reproductive health services, especially among adolescents and young adults compared with their older counterparts, might be attributed to many factors, including lack of economic empowerment. For many youths in Nigeria, access to economic support and other social strategic services is a major barrier to adopt a positive sexual behaviour [10]. **For example, lack of money to buy condoms, inability to negotiate safe sex when there are**

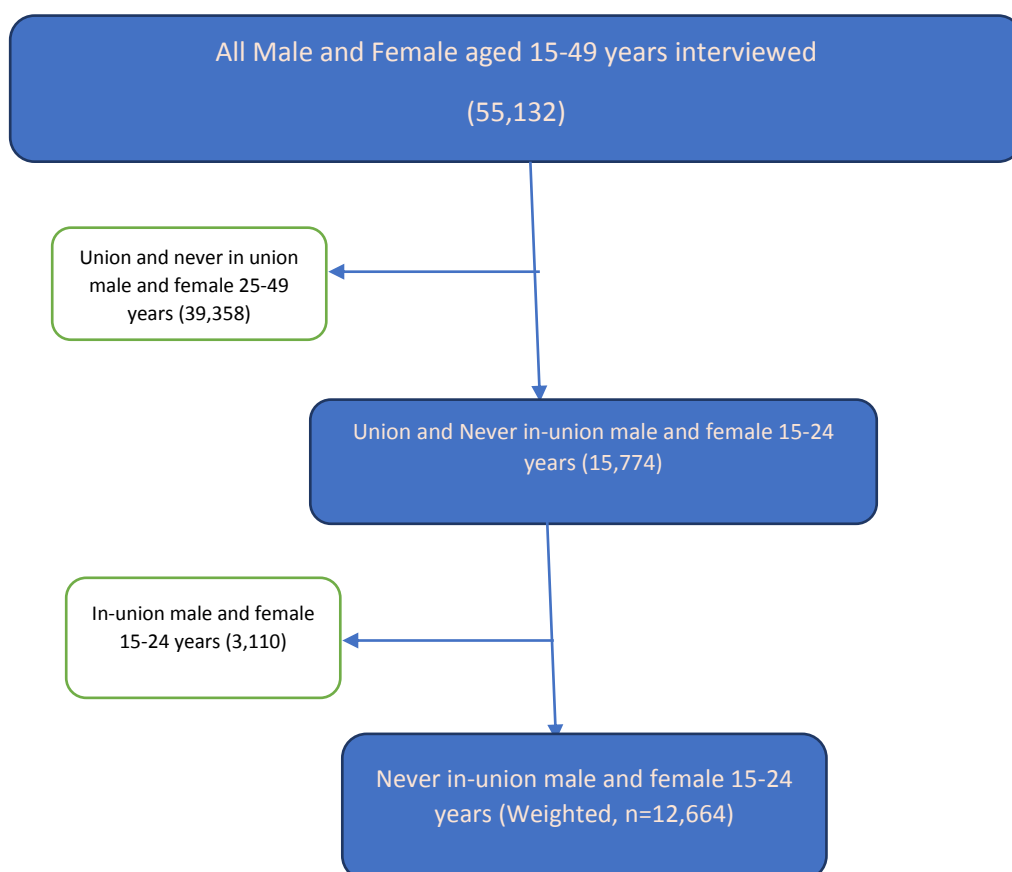
other pecuniary benefits, thereby increases young people's risk of getting an STI. Researchers from different fields of study have researched individual, household, and neighbourhood factors, including socioeconomic factors that can lead to RSB among young people. Such research includes the influence of economic empowerment, family structure, community poverty, gender, ethnicity, region, mass media, place of residence, and education attainment [12,13,14,15,16,17,18,19]. Other studies, included personal factors such as age, gender, and employment status [20,21]. Putra and colleagues found that within the communities in Nigeria, the majority of youths are unable to negotiate for safer sex practice. This is due to a lack of economic support and are more likely to be infected by their partner [21]. Moreover, existing studies on the effect of family structure and the upbringing of adolescents and young adults have had mixed findings [13,14,15]. Odimegwu and Adedini reported that young adults from poor economic homes and those raised by single parents had a lower likelihood of engaging in RSB, although this case was different from the findings of other studies [14,19], which was found in a different environment such as UK and South Africa. However, both studies, suggest that STI prevention, including HIV/AIDS policies in Nigeria, must consider youth's lack of economic empowerment and inequality as one of the root causes contributing to the spread of HIV among the youth population [22]. Achieving gender equality and empowering all boys and girls are now recognized as powerful tools to enable accessibility to SRH care services for improved health outcomes [23]. In Nigeria, previous studies on the associated factors between economic empowerment and its influence on transactional sex and condom use [4,24] have not adequately taken into cognisance the disadvantaged none economically empowered adolescents and young adults particularly those from the low or poor household socioeconomic status. This study becomes relevant in Nigeria, which is one of the five countries with the largest populations living in extreme poverty and ranks 37 out of 172 of the world's poorest countries [25].

This study examined economic empowerment as a predictor of transactional sex and condom use among adolescents and young adults in Nigeria. The findings will accurately shed light on how youth economic empowerment influences engagement in transactional sex and condom use in Nigeria. The outcome is expected to provide up-to-date information and, relevant policy and programmatic recommendations for achieving sustainable development goals of universal access to quality sexual and reproductive health services and reducing mortality among young people.

Methods

This study used secondary data from the recent 2018 Nigeria Demographic Health Survey (NDHS) conducted across all 36 states of the country and FCT Abuja. The cross-sectional quantitative design method of data collection was adopted for the survey, implying that data of the sampled population was taken at a single point in time [26]. The NDHS is a nationally representative survey that gathers vital health and demographic data on women and men of reproductive age (15–49 years) and men aged 15–59 years. The sampling frame and clusters (primary sampling units) defined on the basis enumeration areas (EAs) created for the 2006 population and housing census were used for the three surveys [5, 20]. For the 2018 NDHS, randomly selected samples of 42,000 households, were nationally representative. A two-stage stratified cluster sampling design was used to select the survey respondents. Other reports have provided comprehensive details on the sampling plan and data collection techniques [5, 20, 21]. The target population for the study is adolescents and young adults aged 15 to 24 years. A total of 12,664 (females—3778 and males—8886) samples were extracted from the subsets of data contained in the 2018 NDHS, as shown in Figure 1.

Figure 1: Procedure for sample selection



Outcome variables

The outcome variables in this study were transactional sex and condom use (unprotected sex) among adolescents and young adults aged 15-24 years. Transactional sex variables were initially coded as sex trade. This was later recoded into two variables: 'Yes' and 'No' if the respondent has engaged in trade sex (sex in exchange of money, gift, etc). Previous studies have shown that one factor that continues to contribute to the rising rate of sexually transmitted infections (STIs) is transactional sex, especially among the youth [27,28]. This behaviour is linked to serious health risks and is believed to be brought on by an unequal power dynamic in romantic relationships, especially when the individual is not economically viable. Non-condom use, that is, unprotected sex without a condom in their last sexual intercourse. "Did you use a condom during your last sex with your most recent partner?" The unprotected sex variable was coded "1" if youths reported not to use condoms, and if otherwise, "0". The 12-month reference period was useful for capturing the most recent behaviours and minimising recall errors. The interest in non-condom use was because it constitutes the key pathway through which young people can contract STIs and HIV infections, which spread sporadically across [19].

Explanatory variables

The key primary explanatory variable for this study was economic empowerment. Previous studies have suggested four important dimensions of individual empowerment, especially in developing countries, at the household level: economic, socio-cultural, educational, and health [29,30,31]. We considered the economic dimensions of empowerment in this study, and we identified several economic variables that included respondent's occupation, earnings from respondent's work, wealth status and seasonality of respondent's occupation. In this study, we considered the wealth status of households, which DHS used in measuring economic empowerment. The DHS questions about household wealth are not restricted to any category of individuals. Therefore, adolescents and young adults aged 15-24 years were included in the analysis. Adolescents and young adults were classified as economically empowered if they resided in a rich household, which was considered as "Not Poor". Otherwise, when residing in a poor household, the respondent was classified as not being economically empowered in this study. Thus, economic empowerment was measured as the percentage of adolescents and young adults from households in the poorest wealth quintile [32]. Apart from the key explanatory variable, the following co-variables were included in the analysis: age of adolescents and young adults, educational attainment, place of residence, community media access, community poverty, sex of the head of household, and community education. To make

interpretations simpler and more meaningful, some variables were regrouped from their original categories in the datasets. For instance, age 15-19/20-24 years, and educational attainment: less or primary/secondary or higher education (see table 1). The choice and selection of key explanatory variables and co-variables were informed by their documented significant associations with risky sexual behaviour and other potential health implications [27,19]

Table 1: List of variables

Variable type	Variable	Description
Outcome variables	Transactional sex	Measured as sex in exchange for money, gifts, or any other material things.
	Condom use (unprotected sex)	Percentage of youth who used a condom during the last sex with their most recent partner. This variable was coded "1" if youths reported not to use condoms, and if otherwise, "0".
Key explanatory variable	Economic empowerment	This was calculated using the percentage of youths residing in households in the poorest quintile of the wealth index, grouped into: "Not Poor" empowered and "Poor" not empowered
Co-variables	Age	This variable is categorised as 15-19 and 20-24 years
	Education attainment	The highest educational level of the respondent. Categorized as primary or less, secondary, and higher education attainment.
	Place of residence	Categorized as a rural or urban residence
	Media access	Categorized as the level at which a an

		individual can access media (radio, TV, Newspaper etc.).
	Community poverty	This was calculated using the percentage of households in the wealth index's poorest quintile. This was categorised as “Low” and “High”
	Sex of head of household	The sex of household was categorised as male or female-headed household
	Community education	Community education was defined as the level of educational attainment in the household, and categorized as (i) low (ii) high

Statistical analysis

The statistical analysis of this study was performed using STATA version 17 software, with 5% level of confidence. At a descriptive level, frequencies, and percentage distributions of selected background characteristics of adolescent and young adults were presented for the country analysed. At the bivariate level, cross-tabulations with chi-square tests were used to analyse the association between the outcomes and selected independent variables. To assess the effects of key explanatory variables and several individual-level characteristics on transactional sex and condom use, a multivariable binary logistics regression model was applied to Nigeria’s DHS data. **Adjusted odd ratios (AOR) with corresponding 95% confidence intervals (CI) were reported.** All covariates from the bivariate analyses with a significance of 0.2 were included in the multivariable logistic regression analysis.

Ethical considerations

To obtain data for this study, a simple request was made on the DHS programme website on June 8, 2022, and approval was granted to download the data the next day. Therefore, there were no ethical issues of concern for this study. The data analysed in this study are available in the public domain at <https://dhsprogram.com/>. The data used did not contain any identifying information. Thus, all data collection methods were performed in accordance with relevant ethical guidelines and regulations. The DHS protocols ensured that all participants older than 18 years who were enrolled in the DHS

provided their informed consent during enumeration. In addition, parents or guardians of all participants aged 15 to 17 gave informed consent before the legal minors were asked for their assent.

Results

Sociodemographic characteristics of the study population

Table 2 provides the distribution of the study samples of the country (Nigeria) analysed. For the male respondents, of the 8,886 respondents, 73.8% were aged 15-19 years, while 26.2% were aged 20-24 years. Male respondents with primary or less education was 19.6%, those who had secondary education attainment were in the majority (71%), whereas, as low as 9.4% had a higher education attainment. For economic empowerment, male who were not empowered were in the majority (50.5%), meanwhile, less than 50% of the male respondents were empowered. About 49.7% of the male respondents reside in the urban area, while over 50% of the male respondents reside in the rural area. Furthermore, male respondents (71.9%, indicate that they had no access to media, compared with 28.1% resides in community with access to media. However, over 30% of the male respondents lives in a community with low and average poverty levels, while 28.8% indicate that they reside in a community with high poverty level. Slightly over 30% of the male respondents were from communities with low, average, and high education attainments respectively. As shown in Table 2, male respondents from male-headed households (74.9%) outnumbered male respondents from a female-headed households (25%).

For the female respondents, Table 2, shown that out of 3,778 female respondents, 65.2% were aged 15-19 years, while 28.8% were aged 20-24 years. Female respondents with secondary education attainments (64.6%) were in the majority, those who had primary or less education attainments were 27.5%, while less than 10% of the female respondents had a higher education attainment. For economic empowerment, female who were not empowered were in the majority (61.9%), while less than 40% of the female respondents were empowered. About 59.6% of the female respondents reside in rural area, while less than 50% of the female respondents reside in the urban area. In addition, about 72.4% of the female respondents had no access to media, only 28% of the female respondents resides in community with access to media. Meanwhile, about 41.6% of the female respondents resides in community with high poverty level, whereas 31.2% and 27.2% of the female respondents resides in a community with average and low community poverty levels respectively. Slightly over 40% of the female respondents were from community with low education, while less than 30% of the female respondents were from community with average and high

education respectively. As shown in Table 2, female respondents from male-headed households (84.7%) outnumbered female respondents from female-headed households.

Table 2: Sociodemographic characteristics of the study population

	Gender	
	Male, N=8,886 (%)	Female, N=3,778 n (%)
Age		
15-19	6557(73.79%)	2464(65.22%)
20-24	2329(26.21%)	1314(28.77%)
Educational Attainment		
Primary &less	1744(19.63%)	1038(27.47%)
Secondary	6310(71.01%)	2440(64.58%)
Higher	832(9.36%)	300(8.94%)
Economic Empowerment		
Empowered	4394(49.45%)	1441(38.14%)
Not Empowered	4492(50.55%)	2337(61.86%)
Place of Residence		
Urban	4418(49.72%)	1532(40.55%)
Rural	4468(50.28%)	2246(59.55%)
Community Media Access		
No	6386(71.87%)	2734(72.37%)
Yes	2500(28.13%)	1044(27.98%)
Community Poverty		
Low	3218(36.21%)	1026(27.16%)
Average	3109(34.99%)	1179(31.21%)
High	2559 (28.80%)	1573(41.64%)
Community Education		
Low	2984(33.58%)	1662(43.99%)
Average	2927(32.94%)	1078(28.53%)
High	2975(33.48%)	1038(27.47%)
Sex of head of household		
Male	6660(74.95%)	3201(84.73%)
Female	2226(25.05%)	577(15.27%)

Association among respondents, sociodemographic characteristics, and non-condom use (unprotected sex)

Table 3 shows the bivariate analysis of association between having unprotected sex and sociodemographic of the respondents. The results revealed that all the explanatory variables were significantly associated with having unprotected sex, except for sex of the head of household. 46% of young adults aged between 20 and 24 engaged more in unprotected sex when compared to 37% of adolescents who also engage in unprotected sex (15–19 years). Adolescents/young adults who have attained higher education (53%) had higher tendencies to engage in unprotected sex than those with secondary (42.23%) and primary/less education (28.21%). In the case of economic empowerment, adolescents/young adult who are less empowered (35.51%) engaged more in protected sex than those who are more empowered (48.54%). In addition, adolescents/young from rural areas (40.37%) engaged slightly less in unprotected sex than their counterparts residing in urban areas (45.05%). Adolescents/young adults with access to community media had a very high tendency to engage more in unprotected sex than those who never had access to community media. High community poverty (31.24%) was associated with lower engagement in unprotected sex than average (42.56%) and low community poverty (49.25%). Adolescents/young adults from communities with average levels of education (46.29%) had slightly more unprotected sex than those from communities with high (41.29%) and low levels of education (40.31%).

Table 3: Dimensions of RSB (Unprotected Sex), Sociodemographic, and Community Factors

Characteristics	Unprotected Sex (Non condom use)		
	Yes	No	P-value
	Freq (%)	Freq (%)	
Age			
15-19	397(37.14%)	672(62.86%)	0.000
20-24	697(46.53%)	801(53.47%)	
Educational Attainment			
Primary/less edu.	77(28.21%)	197(71.79%)	0.000
Secondary	785(42.23%)	1074(57.77%)	
Higher	232(53.33%)	203(46.67%)	
Economic Empowerment			
Not poor	680(48.54%)	721(51.46%)	0.000
Poor	414(35.51%)	752(64.49%)	
Place of Residence			

Urban	555(45.05%)	677(54.95%)	
Rural	539(40.37%)	795(59.63%)	0.017
Community Media Access			
No	624(38.31%)	1005(61.69%)	
Yes	470(50.11%)	468(49.89%)	0.000
Community Poverty			
Low	528(49.25%)	544(50.75%)	
Average	372(42.56%)	502(57.44%)	
High	194(31.24%)	427(68.76%)	0.000
Sex of head of household			
male	734(42.55%)	991(57.45%)	
female	372(42.56%)	482(57.24%)	0.922
Community Education			
Low	285(40.31%)	422(59.69%)	
Average	380(46.29%)	441(53.71%)	
High	429(41.29%)	610(58.71%)	0.033

Association among respondents, sociodemographic characteristics, and transactional sex

Table 4 shows the bivariate analysis of the association between transactional sex and sociodemographic and community factors. The results revealed that among other variables, only education attainment was significantly associated with transactional sex. That is, adolescents/young adults with primary education and less education (23.78%) engage more in transactional sex than those with secondary education (15.92) and higher education (11.69%).

Table 4: Dimensions of Transactional Sex, Sociodemographic, and Community Factors

	Transactional Sex		
	Yes Freq (%)	No Freq (%)	P-value
The age group			
15-19	185(16.59%)	930(83.41%)	
20-24	248(15.64%)	1338(84.36%)	0.505
Educational attainment			
primary & less	68(23.78%)	218(76.22%)	
Secondary	311(15.92%)	1642(84.08%)	
Higher	54(11.69%)	408(88.31%)	0.000*
Economic empowerment			
Not poor	232(15.84%)	1233(84.16%)	
Poor	201(16.26%)	1035(83.74%)	0.764

Place of Residence			
Urban	210(16.38%)	1072(83.62%)	
Rural	223(15.72%)	1196(84.28%)	0.638
Community media access			
No	265(15.54%)	1440(84.46%)	
Yes	168(16.87%)	828(83.13%)	0.365
Community poverty			
Low	171(15.28%)	948(84.72%)	
Average	156(16.79%)	773(83.21%)	
High	106(16.23%)	547(83.77%)	0.642
Sex of the household head			
Male	291(15.89%)	1540(84.11%)	
Female	142(16.32%)	728(83.68%)	0.776
Community education			
Low	102(13.62%)	647(86.38%)	
Average	142(16.44%)	722(83.56%)	
High	189(17.37%)	899(82.63%)	0.091

Table 5 represents the binary logistic regression of the independent and outcome variables. The purpose of this study is to investigate the effect of each independent variable on the outcome variable. However, the results in table 5 show that none of the independent variables were significantly associated with unprotected sex, but there was an odd ratio of increased and decreased likelihoods.

For the female respondents, females aged 20-24 years have increased odds of engaging in unprotected sex (OR=1.69, 95% CrI=1.04-2.76), when compared with the female youths aged 15 to 19 years. Also, adolescent females in higher education have increase odds of engaging in unprotected sex compared to their peers in secondary and primary or less education (OR=3.91, 95% CrI=1.88-8.14) respectively. Adolescent girls from female-headed homes have a lower odd of engaging in unprotected sex (OR=0.8, 95% CrI=0.46-1.39), compared with female adolescents/young adults in male-headed households. Adolescent girls in communities with average poverty have a higher odd of engaging in unprotected sex compared with their peers in low- and high- poverty communities (OR=1.34, 95% CrI=0.69-2.59). Adolescent girls in communities with average education have increased odds of engaging in unprotected sex compared to their peers in low- and high educated community (OR=1.34, 95% CrI=0.64-2.59).

For the male respondents, aged 20-24 years have increased odds of engaging in unprotected sex (OR=1.57, 95% CrI=1.20-2.02), when compared with the male youths aged 15 to 19 years. Also, adolescent males in higher education have increase odds of engaging in unprotected sex compared to their peers in secondary and primary or less education (OR=3.22, 95% CrI=1.19-8.66) respectively. Adolescent/young adults male from female-headed homes had increase odds of engaging in unprotected sex (OR=1.14, 95% CrI=0.88-1.46), compared with male adolescents/young adults in male-headed households. Meanwhile, adolescents' boys in average and high poverty communities have lower odds of engaging in unprotected sex in Nigeria compared with their counterparts in low poverty community (OR=0.86, 95% CrI=0.65-1.13) and (OR=0.58, 95% CrI=0.15-2.27) respectively. Meanwhile, boys in the average and high educated communities have a lower odd of engaging in unprotected sex compared to their peers low educated community (OR=0.8, 95% CrI=0.58-1.10) and (OR=0.75, 95% CrI=0.55-1.02) respectively.

Table 5: Summary of the Interactions between Unprotected Sex and Economic Empowerment

Characteristics	Female	Male
	Unprotected sex odds ratio [95% confidence interval]	Unprotected sex odds ratio [95% confidence interval]
Age		
15-19	Ref.	Ref.
20-24	1.69[1.04, 2.76]*	1.57[1.20, 2.02]*
Education		
Pri/less edu.	Ref.	Ref.
Secondary	2.43[1.00, 5.86]*	2.63[1.29, 5.34]*
Higher	3.22[1.19, 8.66]*	3.91[1.88, 8.14]*
Place of Residence		
Urban	Ref.	Ref.
Rural	0.94[0.59, 1.52]*	1.08[0.83, 1.40]*
Community Media Exposure		
No	Ref.	Ref.
Yes	2.04[1.27, 3.26]*	1.32[1.03, 1.70]*
Head of the Household		
Male	Ref.	Ref.
Female	0.80[0.46, 1.39]	1.14[0.88, 1.46]
Community Poverty		
Low	Ref.	Ref.
Average	1.34[0.69, 2.59]	0.86[0.65, 1.13]

High	0.69[0.06, 7.77]	0.58[0.15, 2.27]
Community Education		
Low	Ref.	Ref.
Average	1.34[0.64,2.59]*	0.80[0.58,1.10]*
High	0.76[0.40,1.42]	0.75[0.55,1.02]*

***Significant at 95% confidence interval**

Table 6 represents the binary logistic regression of the independent and outcome variables (transactional sex). The study investigates the effect of each independent variable on the outcome variable (transactional sex). However, the results in table 6 show that none of the independent variables were significantly associated with transactional sex, but there was an odds ratio of increased and decreased likelihoods.

For the female respondents, females aged 20-24 years have increased odds of engaging in transactional sex (OR=1.70, 95% CrI=1.04-2.76), when compared with the female youths aged 15 to 19 years. Also, adolescent/young adults' females in higher education have increased odds of engaging in transactional sex compared to their peers in secondary and primary or less education (OR=3.22, 95% CrI=1.20-8.66) respectively. Conversely, adolescent girls in rural area have a lower odd of engaging in transactional sex compared to their counterparts in urban area (OR=0.94, 95% CrI=0.59-1.52). Media exposure was found to have increased odds among the girls (OR=2.04, 95% CrI=1.27-3.26). Adolescent girls from female-headed homes have a lower odd (OR=0.8, 95% CrI=0.47-1.39) of engaging in transactional sex compared with girls in the male-headed homes. Adolescent girls in communities with average poverty have a lower odd of engaging in transactional sex compared with their peers in low- and high-poverty communities (OR=0.57, 95% CrI=0.35-0.94). Adolescent girls in communities with average education have increased odds of engaging in unprotected sex compared with their peers in low- and high-educated communities (OR=1.30, 95% CrI=0.69-2.60).

For the male respondents, aged 20-24 years have lower odds of engaging in transactional sex (OR=0.98, 95% CrI=0.53-1.82), when compared with the youths aged 15 to 19 years. Also, adolescent/young adults' males in higher education have increased odds of engaging in transactional sex compared to their peers in secondary and primary or less education (OR=2.18, 95% CrI=0.46-10.25) respectively. Conversely, adolescent boys in rural area have a lower odd of engaging in transactional sex compared to their counterparts in urban area (OR=0.88, 95% CrI=0.48-1.61). Media exposure was found to have increased odds among the

boys (OR=1.21, 95% CrI=0.67-2.18). Adolescent boys from female-headed homes have increase odd (OR=1.29, 95% CrI=0.67-2.51) of engaging in transactional sex compared with boys in the male-headed homes. Meanwhile, adolescents' boys in average and high-poverty communities have a higher odd of engaging in transactional sex compared to their counterparts in low poverty community (OR=1.54, 95% CrI=0.842-82-) and (OR=1.54, 95% CrI=0.94-2.54) respectively. Again, boys in average- and high-educated communities have a lower odd of engaging in transactional sex compared to their peers low educated community (OR=0.95, 95% CrI=0.43-2.09) and (OR=0.90, 95% CrI=0.41-1.97) respectively.

Table 6: Summary of the interactions between Transactional Sex and Economic Empowerment

Characteristics	Female	Male
	Transactional sex Odds Ratio [95%C.I.]	Transactional sex Odds Ratio [95%C.I.]
Age		
15-19	Ref.	Ref.
20-24	1.70[1.04, 2.76]*	0.98[0.53, 1.82]*
Education		
Pri/less edu.	Ref.	Ref.
Secondary	2.43[1.00, 5.86]*	1.38[0.30, 6.14]*
Higher	3.22[1.20, 8.66]*	2.18[0.46, 10.25]*
Place of Residence		
Urban	Ref.	Ref.
Rural	0.94[0.59, 1.52]	0.88[0.48, 1.61]
Community Media Exposure		
No	Ref.	Ref.
Yes	2.04[1.27, 3.26]	1.21[0.67, 2.18]
Head of the Household		
Male	Ref.	Ref.
Female	0.80[0.47, 1.39]	1.29[0.67, 2.51]
Community Poverty		
Low	Ref.	Ref.
Average	0.57[0.35, 0.94]	1.54[0.84, 2.82]
High	0.69[0.06, 7.77]	1.54[0.94, 2.54]
Community Education		
Low	Ref.	Ref.
Average	1.30[0.69, 2.60]*	0.95[0.43, 2.09]*
High	0.76[0.40, 1.42]	0.90[0.41, 1.97]*

*Significant at 95% confidence interval

Discussion

It is well documented that economic empowerment affects adolescents' and young adult's health outcomes. This study investigated the determinants of transactional sex, and condom use (unprotected sex) among adolescents and young adults in Nigeria with a special focus on the role of economic empowerment. In line with the previous studies in SSA, the results established that adolescents and young adults who are not economically empowered and reside in urban areas, are risk factors for engaging in unprotected sex and transactional sex [4,33,12,19]. The reason for this could be that youths who are not empowered are generally exposed to high level risk of engagement in RSB, which increases the possibility of STIS, including HIV/AIDS in adolescents and young adults [34]. However, this result is in disagreement with the findings of Odii et al., 2020 and Ssewanyana et al., 2020, in which their study revealed that lack of comprehensive information on sex and contraceptives among adolescents who grew up in rural areas influenced the increase of risky sexual behaviour.

About two-thirds of the study population (male and female) were older than 20 years and, the overwhelming majority (65.8%), had engaged in risky sexual behaviour. The bivariate results showed that all the explanatory variables, including living in a high-poverty neighbourhood and an increase in education attainment, were significantly associated with unprotected sex for both male and female adolescents and young adults. These results have some policy implications in line with SDG target 3 of attaining universal access to affordable, reliable, sustainable healthcare, as well as reducing the epidemic of AIDS, tuberculosis, malaria, and other non-communicable diseases among adolescents and young adults in Nigeria. Interventions aimed at improving the health outcomes of young people, including reduction in the rate of HIV/AIDS, and other infectious diseases such as tuberculosis and malaria should consider the role of economically empowering adolescents and young adults.

The findings from the multivariate regression analyses revealed that the engagement in risky sexual behaviour among young people was significantly higher among female adolescents and young adults aged 20-24 years than among their counterparts aged 15-20 years by 1.7 times to engage in transactional sex. These findings corroborate those of previous studies, which found that an increase in age among youths is negatively associated with youth health and wellbeing [19,20,35]. Furthermore, it reiterates the importance of other studies showing that older youth without economic viability and from less empowered households are more

vulnerable to risky sexual behaviour such as engaging in transactional sex, as well as unprotected sex [36,37,38]. The findings could be explained by the possibility that low-income households contribute to a lack of access to housing, food, and healthcare, school dropout rates, unemployment rates brought on by a lack of education, and oversight and monitoring of youth activities. This validates previous studies, which found that most youth deaths are linked to exposure to infectious diseases such as STIs, including HIV/AIDS, and this is closely associated with economic factors, including lack of access to social safety nets provided by the government [23,39].

After adjusting for all the selected sociodemographic factors, youth's age, place of residence, higher education, community poverty, and community media access were found to be significantly associated with the risk of transactional sex. For instance, having a low and less education or secondary education attainment significantly reduced the odds of transactional sex, and this was validated by previous studies [4,36,38]. In addition, living in urban areas has previously been shown to be at a greater risk of transactional sex among youths [4]. Plausibly, engaging in transactional sex could be determined by the level of economic empowerment of adolescents and young adults. Hence, the community level of education contributes to adolescents and young adults' engagement in transactional sex through the lack of knowledge of the harmful effects of sexual high risk, and the education level in Nigeria is intrinsically linked to economic empowerment.

The findings of the influence of age, education attainment, residing in a female-headed household, and average neighbourhood poverty on the risk of unprotected sex were as expected. Living in a female household in Nigeria and not being economically viable could make it impossible for a female youth to avoid engagement in high-risk sex, and hence, resort to contracting HIV infection, which could affect the health outcome in the life course. This has policy implications, as there is a need for more pragmatic strategies towards eradicating infectious diseases among adolescents and young adults in both rural and metropolitan areas, as well as achieving universal access to affordable, reliable, sustainable, and economic empowerment to improve adolescent and young adult health outcomes in Nigeria. Previous studies have attributed the higher risk of unprotected sex to both rural and metropolitan areas of Nigeria [4,23,12,19]. There were variations in the risk of unprotected sex in community education and unprotected sex in Nigeria, with youths from an average-educated

community perhaps exposed to unprotected sex more because they are not economically empowered. The rates of unprotected sex in less and average educated communities [4,19], were higher among youths residing in communities without access to education [40,41]. This is an indication that youth who are not economically empowered are more likely to engage in unprotected sex, and this could be a contributory factor to the higher risk of youth in less and averagely educated communities than their counterparts in other highly educated communities in Nigeria.

In conclusion, the number of deaths among adolescents and young adults remains a problem in Nigeria, and the infectious disease rate is estimated to be among the highest in SSA. This study established that the risk of transactional and unprotected sex is significantly linked to poor economic empowerment for young people in Nigeria. In addition, youth's education attainment, place of residence, community media access, community poverty, residing in a female-headed household, and community education were significantly associated with the risk of transactional sex and non-condom use, as well as the death of young people in Nigeria. Non-economically empowered youths might be well noticed in communities with high poverty levels and be linked to other sociodemographic factors. There is a need to empower and sensitise adolescents and young adults, especially non-economically empowered youths in communities with high poverty and less or average education achievement, to adopt PSB lifestyles, whether they are economically viable or not, to improve the health of adolescents and young adults in Nigeria. To lessen the negative effects of RSB and its consequences, government and non-governmental organisations should implement adaptation and mitigation strategies to empower youth and discourage them from engaging in transactional sex and non-condom use.

The study has its limitations. Cause-and-effect relationships could not be established because of the application of cross-sectional DHS data, and the only independent variable were temporal factors connected to adolescent and young adult sexual behaviour. Additionally, there was a chance of reporting bias on the economic empowerment variable used in the study because it was self-reported data. Despite these drawbacks, the results of this study are crucial for helping to shape current strategies and initiatives aimed at reducing youth involvement in RSB by providing them with all the financial support needed to enhance their

health outcomes and resilience and to ensure that everyone in Nigeria has access to cheap, dependable, and sustainable health care services.

List of abbreviations

AIDS - Acquired Immunodeficiency Virus

aOR: - Adjusted Odds Ratio

DHS: - Demographics and Health Survey

HIV: - Human Immunodeficiency Virus

MSP: - Multiple sexual partnerships

OR: - Unadjusted Odds Ratio

PSB: – Positive sexual behaviour

RC: - Reference category

RSB: – Risky Sexual Behaviour

NACA: – National Agency for AIDS Control

NDEPS: – National Digital Economic Policy and Strategy

NHREC: – National Health Research Ethics Committee

NDHS: - Nigeria Demographics and Health Survey

NPC: – National Population Commission

SAES: – Skills Acquisition and Empowerment Strategy

SRH: – Sexual and Reproductive Health

SDGs: – Sustainable Development Goals

SSA: – Sub-Saharan Africa

STIs: - Sexually transmitted infections

WHO: - World Health Organization

YECS: – Youth Empowerment Conscientisation Strategy

YELS:- Youth Empowerment Leadership Strategy

YP – Young People

Appreciations

The authors are grateful to the National Health Research Ethics Committee of Nigeria (NHREC) and Ministry of Health (MoH) for making the Nigeria Demographic and Health Survey (NDHS) datasets publicly available, which made this study possible.

Acknowledgements

The authors of this paper acknowledge DHS for freely providing data to conduct this research.

Authors' contributions

NHU conceived the study, downloaded, analysed the data, interpretation, and drafted the manuscript. COO and OAM reviewed and revised the study for important intellectual inputs; All authors read and approved the final manuscript.

Funding

There is no funding to be declared for this research.

Availability of data and materials

The datasets generated and/or analysed during the current study are available in the Nigeria Demographic and Health Survey (2018) repository, freely available at <https://dhsprogram.com/data/available-datasets.cfm>

Declarations:

Ethics approval and consent to participate.

Ethics approval was not required for this study because the data are secondary and is available in the public domain. To conduct our study, we registered and requested the dataset from the DHS online archive and received approval to access and download the data files. According to the DHS report, all respondents' data were anonymized during the data collection.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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