



FACTORS ASSOCIATED WITH SEXUAL IDENTITY AND PREFERENCE AMONG FEMALE STUDENTS IN A SOUTHERN NIGERIAN UNIVERSITY

^{*1,2}NZOPUTAM, C. I., ³NZOPUTAM, O. J., ⁴ONOH, I. V., ⁵AHURU, R. R. & ^{2,6}ADAM, V.

¹Department of Medical Biochemistry, School of Basic Medical Sciences, University of Benin, Benin City, 300001, Nigeria.

ORCID ID: 0000-0002-7552-9545

²Department of Public Health, Center of Excellence in Reproductive Health Innovation, University of Benin, Benin City, 300001, Nigeria.

³Department of Physiology, School of Basic Medical Sciences, University of Benin, Benin City, 300001, Nigeria. ORCID ID: 0000-0002-4043-6605

⁴Center of Excellence in Reproductive Health Innovation, University of Benin, Benin City, 300001, Nigeria.

⁵Department of Economics and Statistics, Faculty of Social Sciences, University of Benin, Benin City, 300001, Nigeria. ORCID ID: 0000-0001-8014-9400

⁶Department of Community Health, School of Medicine, College of Medical Sciences, University of Benin, Benin City, 300001, Nigeria. ORCID ID: 0000-0002-5995-8120

***Corresponding Author's Email:** *chimezie.nzoputam@gmail.com*; **Phone:** +234803 333 0030

ABSTRACT

Sexual orientation is a multifaceted and multidimensional concept that researchers and practitioners define differently based on its theoretical and practical deliberations. This study examined the determinants of sexual identity and preferences of female students in a Tertiary Institution in Southern Nigeria. This is an analytical cross-sectional study which was conducted among 423 female students in University of Benin, Benin City, Nigeria. Extracted data was analyzed using IBM SPSS version 26.0. Descriptive statistics were used to show the characteristics of the women and multivariate logistic regression was used to examine determinants of sexual preference and sexual identity. Statistical significance was set at 5%. The age of the respondents was 21.4 ± 2.6 years. Approximately 53.0% ($n = 224$) of the participants have had sexual intercourse, with the mean SD age of sexual debut being 18.3 ± 2.3 years. Majority 309 (73.1%) of the respondents' sexual preference was vaginal, while only 18.2% and 8.7% preferred oral and anal sex respectively. Approximately 92.0% ($n = 389$) of the respondents were into heterosexual sex; 4.2% were bisexual ($n = 18$), and 3.8% ($n = 16$) were homosexuals. Significant predictors of sexual identity and preference were age, parents' marital status and guardian of the respondents. Though, most respondents preferred vaginal sexual intercourse and majority were heterosexual, there are still considerable number of bisexuals and homosexuals, and those who preferred both oral and anal sex. There is need for young people to be aware of their sexuality, especially among female students in the university where the study was conducted.

Keywords: *Female students, Sexual identity, Sexual preferences, Nigeria, University of Benin.*

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INTRODUCTION

Adolescent and young people are referred as people between 10-24 years of age. It is a period of life and age marked by inquisitiveness which includes exploration in various ideological and cultural roles, sexual preferences and identities as well as career choices. This group of individuals attempts to integrate their life experience such that a matured overall adult identity might be developed. They tend to be engrossed in identity exploration by trying out various roles and continuous reexamination of personal capacity (Harper *et al.*, 2016). The term sexual identity and preference can be interchangeably used with sexual orientation, as a feature characterized by appetitive or desire aspect of sexual behavior in humans (Ridolfo *et al.*, 2012).

Sexual orientation is a complex and multidimensional construct that is differentially defined by researchers and practitioners based on both theoretical and practical considerations (Eliason, 2014; Rosario and Schrimshaw, 2014). It indicates the provocation as to the sexual interest and arousal type an individual may most likely have or develop towards another person. The complexity of sexual preference and identity may be on the ground that some researchers and individuals understand it as a matter of choice and individuals use of multitude of sexual as well as gender identity labels (Eliason *et al.*, 2016). The sex of an intending partner being preferred is the dimension in sexual preference that is most important to researchers. Sexual identity is individual's self-conception about sexual attraction towards another, as a homosexual, bisexual, or heterosexual person, or it can be referred to as how one perceives oneself in terms of who one is romantically and/or sexually attracted to (Gorski *et al.*, 2013).

Adolescents and young people often explore their sexual preference and identity within some multiple ecological sociocultural systems, particularly the immediate environment such as family, school, and peer networks (D'augelli, 2005; Making Human Beings Human, 2005; Mustanski *et al.*, 2011; Development Services Group, Inc, 2014; Harper *et al.*, 2016; Freitas *et al.*, 2017). Often, social institutions tend to provide support and guidance for different sex or heterosexually identified young people. On the contrary, same sex and bisexual adolescents may find that their family and confidants do not accept or support them in their bid to develop their identity. Rather they may actually carry out deleterious acts of verbal and physical assaults against them (Harper *et al.*, 2016). An exploration of one's sexual identity is one critical aspect of identity formation for adolescents.

These discordances are likely due to multiple factors which include stigma, laws and legal risks in some countries, especially developing countries like Nigeria, where same sex relationships are criminal offence (with 14-year jail term) (Schwartz *et al.*, 2015). Other factors include sociocultural norms and values, and meanings, developmental changes, partner selection opportunities, sexual decision-making process and even economic considerations (Boladale *et al.*, 2015). High rates of risky sexual behavior among adolescents (such as unprotected sex, use of drugs for sex and multiple sexual expedition) and young people practicing same- and bisexual- sex have been documented, thereby posing a public health concern and thus, effort to controlling these risks is important to stakeholders and policy implementers (Odii *et al.*, 2020).

Many contemporary perspectives which are centered on sexual preferences and identities suggest that their broader construct includes elements of sexual attraction, sexual behavior, sexual identity/identification, and romantic orientation and/or relationships (Morgan, 2013; Mustanski *et al.*, 2014; Rosario and Schrimshaw, 2014; Hall *et al.*, 2021). In many different cultural environments, male and female non-heterosexuality in adulthood tends to be associated with post childhood gender nonconformity. This childhood gender nonconformity can be very subtle,

emerging at an early age, or extreme in some cases, persisting into adulthood, irrespective of conventional gender socialization (Bailey *et al.*, 2016). To the best of our knowledge, there are little or no research on the sexual identity and preferences of young university students in Nigeria, in general and non-have been conducted in the University of Benin and its environment. We therefore, designed this study with the objective of determining the sexual identity and preferences of female students in University of Benin, Benin City, Edo State, South-South Nigeria.

MATERIALS AND METHODS

Study settings

The study was conducted in five faculties in University of Benin, Edo State Nigeria. Established in 1975, University of Benin is one of the first generational Universities in Nigeria. The university has fourteen faculties and an estimated student population of over 70,000 in both her part-time and full-time programs.

Sample size calculation

The data analyzed was gotten from 423 female students across five faculties. The sample size was calculated using the Cochran's formula for minimum sample size determination in cross-sectional study. Assuming a 50% prevalence of sexual identity and preference, due to dearth of studies on sexual identity and sexual preference; 1.96 critical values for 95% confidence interval; and 5% error margin, and 10% non-response rate, using the Cochran's formula, a sample size of 423 was obtained (Cochran, 1991).

$$n = \frac{Z^2 pq}{d^2}$$

Sampling procedure

A multistage sampling technique was used to select 423 female students' respondents for the study. In the first stage, simple random sampling was used to select five faculties out of the fourteen faculties that make up the university. The selected faculties were Arts, Basic Medical Sciences, Education, Life Sciences and Management Sciences. In the second stage, a list of all the Departments in each of the five selected faculties were obtained from the University's Central Record Processing Unit (CRPU) and numbers were allocated to each Department. This was followed by the use of computer-generated table of random numbers to select three Departments each from the five initially selected Faculties, making a total of fifteen (15) Departments. In stage three, selection of the level of study was done by simple random sampling method. Fresh students or 100 level students were excluded because it is assumed that they were not yet established in the university system. Three levels of study (200, 300 and 400 Levels) from each Department selected in stage two were selected. In stage four, a list of the total population of female in each of the selected Departments was obtained from the CRPU office. This aided for proportional allocation of the sampling tool to each department and to determine the total number of respondents that were to participate from each of the selected departments. Thereafter, lecture halls and hostels of the female students were visited and requests were made to the female students to participate in the study. Anyone who indicated interest was interviewed provided the student fell within the inclusion criteria [all fully registered female students in the University who were within the reproductive age (15-49 years) and gave consent to participate in the study] and also from the Departments and levels selected.

Research instrument

Data was collected using pre-tested structured questionnaire adapted from the 2013 National HIV/AIDS and

Reproductive Health Survey (NARHS) plus (Federal Ministry of Health Nigeria., 2013). The questionnaire was categorized into various sections; socio-demographic characteristics, sexual debut, sexual preferences (vaginal, anal, oral), reason for preference, sexual identity (same sex, different sex, both sexes) and reason for identity choice. Questionnaire comprised twenty (20) questions in all.

Data collection procedure

The questionnaire was administered on face-to-face basis with respondents and was conducted in English language. Data was collected by the primary investigator with the help of five research assistants, who were postgraduate students in College of Medicine, in the same institution. Research assistants were given two days training on the content of the questionnaire, data collection procedure, research ethics, interviewer skills, seeking and administration of questionnaires. The average time to answer the questionnaire was about ten minutes while data collection lasted for three weeks.

Variables and their measures

Two outcome indicators were used for the study. They were sex preference and sex identity. For sexual preference, the researchers considered vaginal, anal and oral sex. On the other hand, sexual identity considered homosexual, heterosexual and bisexual. These variables were examined against all cofounding/covariates/controlling variables which are the socio-demographic characteristics of the respondents. The independent variables included age ($\leq 19/20-24/\geq 25$); ethnic group (Edo indigene/non-Edo indigene); Religion (Catholics/non-Catholics/Islam/others); marital status (single/married); Parent's marital status (living together/divorce and separated/widowed); current academic level (200Level/300Level/400Level); average monthly allowance (5,000-20,000/20001-35,000/35,001-50,000) and current place of residence (living with both parents/living alone/living with single parent/cohabiting/living with husband).

Statistical analysis

Extracted data was entered into excel spreadsheet and transported into IBM SPSS version 26.0 software, for windows. Analyses were undertaken at three stages. In the first stage, frequency and simple proportion were used to describe the characteristics of respondents. In the second stage, bivariate analysis using chi-square was used to test for a significant association between sexual preference and sex identity and the various socio-demographic characteristics of respondents. In the third stage, multivariate logistic regression models were estimated to explore the determinants of sex identity and sex preference. After bivariate analysis, variables with $p \leq 0.05$ and other plausible variables were further analyzed using multinomial logistic regression to control for confounding. Variables with $p \leq 0.05$ were considered significantly associated with the two outcome indicators.

Ethics approval and consent to participate

Ethical approval was obtained from the Research and Ethics Committee, College of Medical Sciences, University of Benin with Protocol Number of Ethical Clearance- CMS/REC/2017/025. Consent was obtained from the female students and the objectives of the study were well communicated to them. Participation was purely voluntary and there was no inducement or undue influence on participants. Confidentiality and privacy were respected during the study

as all the participants were assured that their identity and information given will be kept secret and will not be disclosed. All respondents in this study were given code numbers and no name was recorded. Information collected was not linked to participants in any way and their names or identifiers were never to be used in any publication or reported from this study. The respondents were assured that there would be no penalties or loss of benefits for refusal to participate in the study or withdrawal from it.

Note: Edo indigenes are people from different tribes that make up Edo State, Southern Nigeria, while non-Edo indigenes are all other people who are not from Edo State.

RESULTS

The mean age of the respondents was 21.4 ± 2.6 years. Their ages range from 16 to 34 years. Over two third 67.6% of the respondents were young adults (they belong to the age bracket 20-24 years), 19.2% were adolescents, that is, ≤ 19 years and 13.2% were adults, belong to age 25 years and above. More than half 51.5% of the respondents were Edo indigenes, while 48.5% were non-Edo indigenes. Majority, 91% of the respondents were Christians. Amongst the Christians, 63.4% belong to non-Catholics denominations, while 27.6% belong to the Catholic faith denomination. The remaining 9% are distributed among Islam 2.4% and others, 6.6%. Majority, 92.4% of the respondents were single while 7.6% were married.

Sixty-one (14.4%) of the respondents were in 200 level of their study, 45.6% in 300 level, while 169 (40.0%) were in 400 level. The mean average monthly allowance of the respondents was $17,592.2 \pm 9,676.8$ naira. Over three quarter 336 (79.4%) of the respondents were in the average monthly allowance of 5000-20000 naira, 64 (15.1%) were of 20001-35000 and 23 (5.4%) of the respondents were in the average allowance of 35001-50000 naira monthly. Majority of the respondents 221 (52.2%) currently live with both parents, 78 (18.4%) live alone, 66 (15.6%) with single parent, 32 (7.6%) with husband, and 26 (6.1%) with Boyfriend. Concerning respondents' parental marital status, 300 (71.0%) have their parents still living together as against 78 (18.4%) whose parents were either divorced or separated. Forty-five (10.6%) of the study population were children of single parents or orphaned. Majority of respondents' fathers 274 (64.8%) and mothers 258 (61.0%) had tertiary level of education, while 99 (23.4%) and 94 (22.2%) of the respondents' fathers and mothers respectively were in the skill level 4.

Table 2 shows that the prevalence of sexual intercourse among the studied population was found to be 53.0% as against 47.0% who had not had sexual intercourse. Among those who had ever had sex, majority 64.3% experience their sexual debut within the age of adolescence (that is, ≤ 19 years), 34.8% had theirs as young adults while very insignificant number of them 0.9% had their sexual debut as adults (≥ 25 years). The mean SD age of sexual debut was 18.3 ± 2.3 years. Majority of those who had experienced sexual intercourse 62.4% had their sexual debut with their boyfriends as against those who had theirs with their casual friends 21.0%, relative/family member 11.2% and husband 5.4%. This table shows that nearly two-third, 73.1% of respondents preferred vaginal sexual intercourse, 18.2% preferred oral sex and 8.7% preferred anal sex.

The analysis in Table 3 showed that the factors associated with sexual preference were age, current level of study and current place of residence. Roughly 67.9% ($n = 55$) of respondents who were ≤ 19 years, 75.5% ($n = 216$) of those (20 – 24) years and 67.9% ($n = 38$) of ≥ 25 years preferred vaginal sex compared to 4.9% ($n = 4$); 10.5% ($n = 30$); and 5.4% ($n = 3$) respectively for anal sex and 27.2% ($n = 22$); 14.0% ($n = 40$) and 26.8% ($n = 15$) respectively for oral sex. Again, 76.9% ($n = 170$) of respondents living with both parents; 60.6% ($n = 40$) living with a single parent; 78.2%

(n = 61) living alone; 46.2% (n =12) cohabiting with boyfriend and 81.2% (n = 26) living with husbands preferred vaginal sex compared to 8.6% (n = 19); 12.1% (n = 08); 7.7% (n = 06); 11.5% (n = 03) and 3.1% (n = 01) respectively for anal sex, and 14.5% (n = 32); 27.3% (n = 18); 14.1% (n = 11); 14.1% (n = 11) and 15.6% (n =5) respectively for oral sex.

Table 1. Socio-demographic characteristics of the respondents and their parents

Variables	Frequency (n = 423)	Percent
Age group (years)		
≤19	81	19.2
20-24	286	67.6
≥25	56	13.2
Ethnic Group		
Edo indigenes	218	51.5
Non-Edo indigenes	205	48.5
Religion		
Non-Catholics	268	63.4
Catholics	117	27.6
Islam	10	2.4
Others	28	6.6
Marital status		
Single	391	92.4
Married	32	7.6
Current level of study		
200 level	61	14.4
300 level	193	45.6
400 level	169	40.0
Average monthly allowance (₦)		
5000-20000	336	79.4
20001-35000	64	15.1
35001-50000	23	5.5
Respondents' current residence		
Both parents	221	52.2
Alone	78	18.4
Single parent	66	15.6
Husband	32	7.6
Boy friend	26	6.2
Parents marital status		
Living together	300	71.0
Divorced/Separated	78	18.4
Widowed	45	10.6

Mean age ± SD of the respondents = 21.4 ± 2.6 years

Table 2: Prevalence of Sexual practices, Preferences and Identities among the respondents

Variables	Frequency (n = 423)	Percent
Ever Had Sex		
Yes	224	53.0
No	199	47.0
Age at sexual debut (years)		
	(n = 224)	
≤14	14	6.3
15-19	130	58.0
20-24	78	34.8
≥25	2	0.9
Partner at sexual debut		
Boy friend	140	62.4
Casual friend	47	21.0
Relative/Family member	25	11.2
Husband	12	5.4
Last sex partner		
Boy friend	166	74.0
Husband	30	13.4
Casual friend	14	6.3
Relative/Family member	14	6.3
Preferred Sexual Preference		
Vaginal	309	73.1
Oral	77	18.2
Anal	37	8.7
Reasons for preference		
Normal	200	47.3
Pleasure/Fun	108	25.5
Moral/Religion	85	20.1
Safer	30	7.1
Preferred Sexual Identity		
Different sex	389	92.0
Both sex	18	4.2
Same sex	16	3.8
Reasons for identity		
Normal	209	49.4
Moral/Religion	106	25.1
Safer	69	16.3
Pleasure/Fun	39	9.2

Respondents' mean (\pm SD) age at sexual debut = 18.3 \pm 2.3 years

Table 3: Binomial Logistic Regression analysis for Factors associated with Sexual Preferences

Variables	Sexual Preference			
	Vaginal	Anal	Oral	p-value
Age group (years)				
≤19	55 (67.9)	4 (4.9)	22 (27.2)	0.016*
20-24	216 (75.5)	30 (10.5)	40 (14.0)	
≥25	38 (67.9)	3 (5.4)	15 (26.8)	
Ethnic Group				
Edo Indigene	159 (72.9)	17 (7.8)	42 (19.3)	0.690
Non-Edo Indigene	150 (73.2)	20 (9.8)	35 (17.1)	
Religion				
Catholics	83 (70.9)	11 (9.4)	23 (19.7)	0.118
Non-Catholics	203 (75.7)	24 (9.0)	41 (15.3)	
Islam	8 (80.0)	0 (0.0)	2 (20.0)	
Others	15 (53.6)	2 (7.1)	11 (39.3)	
Marital status				
Single	283 (72.4)	36 (9.2)	72 (18.4)	0.554
Married	26 (81.2)	1 (3.1)	5 (15.6)	
Parents marital status				
Living together	224 (74.7)	25 (8.3)	51 (17.0)	0.769
Divorced/Separated	54 (69.2)	8 (10.3)	16 (20.5)	
Widowed	31 (68.9)	4 (8.9)	10 (22.2)	
Current level of study				
200 level	36 (59.0)	8 (13.1)	17 (27.9)	0.126*
300 level	145 (75.1)	16 (8.3)	32 (16.6)	
400 level	128 (75.7)	13 (7.7)	28 (16.6)	
Average monthly allowance (₦)				
5000-20000	249 (74.1)	33 (9.8)	54 (16.1)	0.125
20001-35000	43 (67.2)	4 (6.2)	17 (26.6)	
35001-50000	17 (73.0)	0 (0.0)	6 (26.1)	
Respondents' current residence				
Both parents	170 (76.9)	19 (8.6)	32 (14.5)	0.006*
Single parent	40 (60.6)	8 (12.1)	18 (27.3)	
Alone	61 (78.2)	6 (7.7)	11 (14.1)	
Boy friend	12 (46.2)	3 (11.5)	11 (14.1)	
Husband	26 (81.2)	1 (3.1)	5 (15.6)	

*Statistically significant

Table 4 below shows that respondents who were (20 –24) years were non significantly, but approximately 3 times (RRR: 2.95; 95% CI = 0.92 - 9.44; P= 0.069) as likely to prefer anal sex, compared to those who were ≤ 19 years old relative to vaginal sex. Respondents who were in 400 level had 71% (RRR: 0.29; 95% CI = 0.10 - 0.36; P = 0.021) reduction in the odds to engage in anal sex, compared to those respondents in 200 level relative to vaginal sex. Furthermore, in reference to respondents who lived with both parents, those who lived with single parents (RRR: 2.43;

95% CI = 1.19 - 4.99; P = 0.015) and those cohabiting with boyfriends (RRR: 5.18; 95% CI = 2.05 - 13.08; P = 0.001) were about 2 and 5 times as likely to engage in oral sex relative to vaginal sex, respectively.

Table 4: Multinomial Logistic Regression analysis to Determine the Predictors of sex preferences

Predictors	RRR	95% CI	p – value
Vaginal (Base outcome)			
Anal Sex			
Age group (years)			
≤ 19	1		
20 – 24	2.95	0.92 - 9.44	0.069
≥ 25	2.33	0.40 - 13.55	0.348
Current Residence			
Both parents	1		
Single parent	1.42	0.56 - 3.59	0.457
Alone	0.85	0.32 - 2.26	0.749
Boyfriend	2.57	0.65 - 10.17	0.179
Husband	0.32	0.03 - 3.47	0.351
Current Level			
200 level	1		
300 level	0.41	0.15 - 1.09	0.074
400 level	0.29	0.10 - 0.36	0.021*
Oral Sex			
Age group (years)			
≤ 19	1		
20 – 24	0.52	0.26 - 1.04	0.066
≥ 25	1.57	0.58 - 4.20	0.370
Current Residence			
Both parents	1		
Single parent	2.43	1.19 - 4.99	0.015*
Alone	0.98	0.46 - 2.11	0.959
Boyfriend	5.18	2.05 - 13.08	0.001*
Husband	0.54	0.14 - 1.95	0.348
Current Level			
200 level	1		
300 level	0.51	0.24 - 1.08	0.077
400 level	0.66	0.29 - 1.48	0.312

* Statistically significant at $p < 0.05$, Vaginal is the base outcome or Reference Category

Analysis in Table 5 showed that the factors associated with sex identity were current place of residence, parents' marital status and average monthly allowance. The result showed that 3.6% of respondents who were living with both parents; none living with single parents; 6.4% living alone; none cohabiting and none living with husbands were homosexual compared to 94.1%, 92.4%, 92.3%, 73.1% and 90.6% respectively were heterosexual and 2.3%, 7.6%, 1.3%, 26.9% and 9.4% respectively were bisexual. Again, 3.3% of respondents whose parents were living together; 1.3% of those whose parents were divorced/separated; 4.4 % of those whose parents were widowed were homosexuals, compared to 94.0%, 83.3% and 93.3% respectively, who were heterosexual; and 2.7%, 15.4% and 2.2% respectively,

who were bisexual. Finally, 3.9% of respondents whose monthly allowance lies within (5,000 - 20,000) were homosexual; none whose monthly allowance lies within (20,001 - 35,000) naira and (35,000 - 50,000) naira were homosexual, compared to 91.7%, 96.9% and 82.6 % respectively, who were heterosexual; and 4.5%, 3.1% and 17.4% respectively, who were bisexual.

Table 5: Binomial Logistic Regression analysis for Factors associated with sexual identity

Variables	Sexual Identity			
	Same Sex	Different Sex	Both	p-value
Age group (years)				
≤19	2 (2.5)	75 (92.6)	4 (4.9)	0.377
20-24	11 (3.8)	263 (92.0)	12 (4.2)	
≥25	0 (0.0)	51 (91.1)	5 (8.9)	
Ethnic Group				
Edo Indigene	9 (4.1)	200 (91.7)	9 (4.1)	0.322
Non-Edo Indigene	4 (2.0)	189 (92.2)	12 (5.9)	
Religion				
Catholics	5 (4.3)	104 (88.9)	8 (6.8)	0.737
Non-Catholics	8 (3.0)	249 (92.9)	11 (4.1)	
Islam	0 (0.0)	10 (100.0)	0 (0.0)	
Others	0 (0.0)	26 (92.9)	2 (7.1)	
Marital status				
Single	13 (3.3)	360 (92.1)	18 (4.6)	0.295
Married	0 (0.0)	29 (90.6)	3 (9.4)	
Parents marital status				
Living together	10 (3.3)	282 (94.0)	8 (2.7)	0.001*
Divorced/Separated	1 (1.3)	65 (83.3)	12 (15.4)	
Widowed	2 (4.4)	42 (93.3)	1 (2.2)	
Current level of study				
200 level	1 (1.6)	56 (91.8)	4 (6.6)	0.209
300 level	8 (4.1)	172 (89.1)	13 (6.7)	
400 level	4 (2.4)	161 (95.3)	4 (2.4)	
Average monthly allowance (₦)				
5000-20000	13 (3.9)	308 (91.7)	15 (4.5)	0.048*
20001-35000	0 (0.0)	62 (96.9)	2 (3.1)	
35001-50000	0 (0.0)	19 (82.6)	4 (17.4)	
Respondents' current residence				
Both parents	8 (3.6)	208 (94.1)	5 (2.3)	<0.001*
Single parent	0 (0.0)	61 (92.4)	5 (7.6)	
Alone	5 (6.4)	72 (92.3)	1 (1.3)	
Boy friend	0 (0.0)	19 (73.1)	7 (26.9)	
Husband	0 (0.0)	29 (90.6)	3 (9.4)	

*Statistically significant

This Table 6 shows that the variables in the model explained 19.82% of the variation in sexual identities of the respondents, and given that is a cross sectional study, the model has impressive goodness-of fit. The model was

statistically useful (Chi-square model coefficient = 55.86, $p < 0.001$). In reference to respondents who were living with both parents those of them cohabiting with boyfriends (RRR: 6.47; 95% CI = 1.37 - 30.70; $P = 0.019$) were approximately six times as likely to be bisexual relative to heterosexual. In reference to respondents whose monthly allowance were within (5,000 - 20,000) naira, those who received (35,001 - 50,000) (RRR: 4.07; 95% CI = 1.37-30.70; $P = 0.042$) were 4.07 times as likely to be bisexual relative to being heterosexual. In reference to respondents whose parents were living together, those whose parents were divorced/separated (RRR: 10.07; 95% CI = 2.39 - 42.39; $P = 0.002$) were approximately 10 times as likely to be bisexual relative to being heterosexual.

Table 6: Multinomial Logistic Regression analysis to Determine the Predictors of sexual identity of respondents

Predictor	RRR	95% CI	p – value
Different sex (Base outcome)			
Same Sex			
Current Residence			
Both parents	1		
Single parent	1.42e	-	0.991
Alone	1.56	0.32 - 7.59	0.579
Boyfriend	1.87	-	0.995
Husband	6.36	-	0.994
Monthly allowance (₦)			
5000 – 20000	1		
20001 – 35000	2.37e	-	0.991
35001 – 50000	3.81e	-	0.995
Parent's Marital Status			
Living together	1		
Divorced/Separated	0.72	0.06 - 8.25	0.793
Widowed	2.31	0.29 - 18.11	0.426
Both Sex			
Current Residence			
Both parents	1		
Single parent	0.46	0.07 - 2.97	0.416
Alone	0.13	0.01 - 1.61	0.113
Boyfriend	6.47	1.37 - 30.70	0.019*
Husband	2.88	0.54 - 15.32	0.216
Monthly allowance (₦)			
5000 – 20000	1		
20001 – 35000	0.72	0.14 - 3.84	0.705
35001 – 50000	4.07	1.05 - 15.73	0.042*
Parent's Marital Status			
Living together	1		
Divorced/Separated	10.07	2.39 - 42.39	0.002*
Widowed	2.27	0.20 - 26.07	0.510

*Statistically significant, Different sex is the base outcome or Reference Category

DISCUSSION

Our finding shows that the prevalence of heterosexuality, bisexuality and homosexuality among female students of the University of Benin were 92.0%, 4.2% and 3.8% respectively. This finding is similar to the report made by a study in Western Nigeria in which 94.5% of the respondents were heterosexual (different sex identity), 4.9% bisexual and 0.7% as lesbian (same sex) (Boladale *et al.*, 2015). Another work done among young people in a community in Benin City also reported that vast majority (98.0%) of respondents identified themselves as heterosexual (different sex individuals), while only 1.5% and 0.5% identified themselves as both sex (bisexual) and same sex (lesbians) individuals respectively (Okafor *et al.*, 2018). More so, similarity can be seen in the report of some studies (Brakefield *et al.*, 2014; Pathela and Schillinger, 2010). The result of that work showed that 90.9% of the respondents identified as heterosexual, 5.4% identified as bisexual (both sex individuals), 1.1% identified themselves as gay/lesbian (same sex individuals) while 2.6% were unsure of what their sexual identity were (Pathela and Schillinger, 2010). The result also has similarity with findings of a 2014 (Stenhammar *et al.*, 2015) study among female undergraduate students in Sweden. They reported 91.6% of the respondents as heterosexual, 5.0% as both sex identity (bisexual) and 3.3% of the respondents as same sex or homosexual individuals. Many other studies have shown that adolescents and young people in Nigeria are practicing risky sexual behavior (Morhason-Bello *et al.*, 2017, 2019; Odeigah *et al.*, 2019; Odii *et al.*, 2020).

Furthermore, in our study about a half (49.4%) of respondents reported that the reason for their choice of sexual identity was “normal”, 25.1% reported “moral/religious” reasons, 16.3% said “safer” while 9.2% said it was due to “pleasure/fun” they derive from their identity choice. Majority of the respondents who were Christians 353 (91.7%) and all the Muslims 10 (100.0%) respondents identified themselves as different sex (heterosexuals). The association between religion and sexual identity was not statistically significant. Respondents whose parents were either separated/divorced have higher odds of identifying themselves to be bisexual individuals than those whose parents were living together. The association between parents’ marital status and sexual identity was statistically significant. The similarity in these findings in association with other studies’ findings could be due to globalization and the availability of internet facilities in the universities. Students could now have access to information of the happenings in other parts of the world through the availability of internet services in schools and colleges around the country. This gives the students access to practice what may initially be termed taboo in their immediate cultural environment. The reported low prevalence of same sex identity in this study may be as a result of societal and religious disapproval of same sex relationships. Although, this disapproval is gradually waning as gay/lesbian groups are springing up in our environment and have been launching protests for acceptance and legalization of their sexual identity as it’s being seen in many developed worlds.

Three hundred and nine (73.1%) of the female students of the University of Benin in this survey preferred vaginal sexual intercourse exclusively compared to 18.2% who preferred oral sex and 8.7% who preferred anal sex. This finding is similar to a study by Morhason-Bello and colleagues (Morhason-Bello *et al.*, 2017), where 98.5% preferred vaginal sex and finding from another study conducted in Benin city, Nigeria in which 95.2%, 3.3% and 1.5% preferred vaginal, oral and anal sex respectively (Okafor *et al.*, 2018). However, the study by Morhason-Bello and colleagues differed with a higher proportion of the respondents who preferred anal sex (15.2%) and oral sex (47.2%) when compared with this study (Morhason-Bello *et al.*, 2017, 2019). This is because their study used multiple response questions and this may have resulted in the high proportion it recorded in anal and oral sex preference. A higher

proportion of respondents reported the reason for their preference was “normal” (47.3%), and “pleasure/fun” (7.1%) while 25.5% and 20.1% reported their reasons to be “moral/religious” purposes and “safer” respectively. Majority of the respondents who were Christians (75.0%) and Muslims (80.0%) mentioned vaginal sex as their sexual preference, though the association between sexual preference and religion was not statistically significant. The respondents’ age and current resident were found to be associated with their choice of sexual preferences and this association between the age and current resident was statistically significant

The multinomial logistic regression of the sex identity showed that the issue of practice of sexual attraction to both sexes were high among people living with their boyfriends. Those students who seemed to have the highest monthly allowance have a higher risk of being individuals whose sex orientation or identity were both sexes. More so, respondents who were living with their boyfriends in this study had a high likelihood of preferring oral sex when compared to those who were living with their both parents. The practice of oral and anal sex has been reported by other authors among adolescents and young adults in Nigeria (Morhason-Bello *et al.*, 2017, 2019; Odeigah *et al.*, 2019; Robbins *et al.*, 2020) and elsewhere (Habel *et al.*, 2018; Carlos *et al.*, 2019; Kutner *et al.*, 2020). The reason for this could be that parental guidance still play important role in the reproductive health life of the young people in our environment. This study is evidence that same sex and bisexual attraction and practice are currently occurring among young people in Nigeria and this has sexual, reproductive and family health implications among the population. An explanation for this evidence of homo- and bi- sexual orientation, and practice of oral and anal sex among young people in Nigeria could be that some young women lack assertiveness and sexual decision making and often want to please their male sexual partners; as report have shown that male sexual partners initiate anal and oral sex more often than women do (Štulhofer and Ajduković, 2013; Benson *et al.*, 2019; Boydell *et al.*, 2021).

The experience of anal and oral sex among young people has increased in our society today and one explanation might be the normalization of anal and oral sex in pornography as almost every young person in Nigerian university these days have access to internet services, possesses a smart phone and can watch pornography, and probably want to test different sexual practices with their sexual partner. This seem also to be a global trend as reports have shown (Mattebo *et al.*, 2016; Peter and Valkenburg, 2016; Dwulit and Rzymiski, 2019; Borneskog *et al.*, 2021; Cui *et al.*, 2021; Donevan *et al.*, 2021). These practices of homo-and bi-sexuality have a wide range of consequences and public health implications which include sexually transmitted infections, loss of core moral values and respect for family values, and may eventually lead to depopulation of the society and thereby adversely affecting the workforce. It will be healthy if standard and all-encompassing family life education is included into school curriculum from the primary level so that pupils are given sex education and the need for safe sexual practices.

LIMITATIONS

The only limitation of the study was that the data collected from the respondents were based on self-report, and this is likely to be prone to biases. More so, since the subject matter is sexual issue, many may have found it difficult to divulge such information as their sexual practices, sex preference and identity. This may be due to the social and cultural norms and attachment to the issue of sexual practices in Nigeria. The investigator made it clear to them that none of their identity will be published or made public. Therefore, they needed not to be afraid. Thus, respondents may have given information that may not be a true representation of their sexual behavior and exploits, thereby leading to bias.

CONCLUSION

This study has made it clear that female students who were living with single parents and those cohabiting were more likely to engage in oral sex. Also, respondents whose parents were divorced/separated and those cohabiting were significantly more likely to prefer bisexuality. Age, parents' marital status and current place of residence were the significant determinants of sexual preference and identity. These therefore imply that there is need for young people to be aware of their sexuality, through provision of adequate sexual and reproductive health education programs, especially among female students in the university where the study was conducted. This study shows that there are increase in the practice of bi-and homo-sexuality among the female students in the university.

POLICY RECOMMENDATIONS

Based on the findings from the study, the following recommendations are made believing that implementation of them will be of great importance at improving the sexual and reproductive health of young people. (i) Government should help in the implementation of comprehensive adolescent friendly health services so as to increase students' access to sexual and reproductive health information and services. (ii) Family Life Education (FLE) which is an integral part of the basic school curriculum should be implemented so that young people will be equipped with adequate sexual and reproductive health information to enable them make informed decisions about sexual issues. (iii) There is need to ensure that control programs redirect efforts at sexual behaviors that put young people at greater risk of STIs, and also target young adolescent before sexual debut. (iv) Health care workers should educate female students and the male partners on the need for them to seek for help for counseling concerning sexual health issues.

ABBREVIATIONS

CMS: College of Medical Sciences; CRPU: Central Record Processing Unit; FLE: Family Life Education; NARHS: National HIV/AIDS and Reproductive Health Survey; REC: Research and Ethics Committee; STIs: Sexually Transmitted Diseases.

AUTHORS' CONTRIBUTIONS

CIN conceived and designed the study, performed data analysis, wrote the results, and wrote the discussion of the findings. OJN helped in collections of data and data management, RRA and VYA reviewed the literature. VYA supervised the work. CIN, OJN, VIO, RRA, and VYA critically reviewed the manuscript for its intellectual content. All authors read and approved the final version of the manuscript.

ETHICS STATEMENT

Ethical approval was obtained from the Research and Ethics Committee, College of Medical Sciences, University of Benin with Protocol Number of Ethical Clearance- CMS/REC/2017/025.

FUNDING

This research received no grant from any funding agency in the public, commercial, or not-for-profit sectors.

DATA AVAILABILITY STATEMENT

Data for this study can be made available on request.

CONSENT TO PARTICIPATE IN THE STUDY

Consent was obtained from the female students and the objectives of the study were well communicated to them. Participation was purely voluntary and there was no inducement or undue influence on participants. Confidentiality and privacy were respected during the study as all the participants were assured that their identity and information given will be kept secret and will not be disclosed. All respondents in this study were given code numbers and no name was recorded. Information collected was not linked to participants in any way and their names or identifiers were never to be used in any publication or reported from this study. The respondents were assured that there would be no penalties or loss of benefits for refusal to participate in the study or withdrawal from it.

CONFLICT OF INTERESTS

The authors declare that no commercial or financial relationships that could be construed as a potential conflict of interest existed during the research.

ACKNOWLEDGEMENT

The authors appreciate the respondents for agreeing to participate in the project.

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