

Women's Knowledge and Attitude Regarding Sexual and Reproductive Health Rights in an Urban North-Western Nigerian Community

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ABSTRACT

Background: Sexual and reproductive health rights (SRHR) are essential human rights that are indisputable globally and should be well known and embraced by all individuals. Women especially those living in developing countries have little to no access to information and services about their reproductive health and rights. **Aim:** To determine the level of knowledge and attitude to sexual and reproductive health rights and associated factors among women in an urban north-western Nigerian community. **Methods:** A community-based, descriptive cross-sectional study was conducted among 240 women of reproductive age group in Kaduna South Local Government Area, Kaduna State from September 24th to October 9th, 2019. They were selected through a multistage sampling technique. Data were collected on socio-demographic characteristics, knowledge about and attitudes toward SRHR. Bivariate and multivariable logistic regression analyses were performed and adjusted odds ratios (AOR) with 95% confidence interval (CI) and value < 0.05 were used to assess for statistical significance. **Results:** A total of 107 (44.6%) respondents said they had heard about SRHR, of which only 104 (43.3%) respondents had good knowledge about SRHR. A higher proportion (55.4%) of the respondents had favourable attitudes towards SRHR, with a considerable 44.6% having poor attitudes. Multiple logistic regression identified the educational status of women (AOR=0.32; 0.15- 0.68) and ethnicity (AOR=2.49; CI=1.13- 5.49) as significant predictors of knowledge of SRHR. The educational status of women (AOR=0.32; 0.15- 0.68) was also found to be a significant predictor of the attitude of women towards SRHR. **Conclusions:** Knowledge about SRHR was poor among the women, though a majority had favourable attitudes towards SRHR. Appropriate programs need to be implemented by governmental and relevant stakeholders to promote women's educational status and enhance women's SRHR knowledge.

Keywords: Reproductive health, Reproductive health rights, Women



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BACKGROUND

Sexual and reproductive health rights (SRHR) have continued to be a topical issue worldwide. They are fundamental to the health and survival of humanity and have far-reaching implications for people's well-being¹. Still, millions of people are denied their right to sexual and reproductive health, the vast majority of which are poor people, especially women and young people in developing countries².

The concept of SRHR emerged sequel to the International Conference on Population and Development (ICPD) 1994 in Cairo³. There was a paradigm shift of the focus of reproductive health programming from concerns about family planning and population control to a comprehensive definition of sexual and reproductive health (SRH) and the placing of reproductive health in the context of human rights and the right to health⁴. Beyond the initial definition of SRHR as the right for all people, regardless of age, gender and other characteristics, to make choices regarding their sexuality and reproduction, including the right to access information and services to support choices and promote SRH⁴. Included were the rights to sexual health, a focus on not only problems and diseases, but on positive experiences around pregnancy, parenthood, sexuality and relationships among women⁴. The reproductive health gap between developed and developing countries remains inequitably enormous. It has been estimated that the lifetime risk of a woman dying due to maternal causes is one in 16 in Sub-Saharan Africa as compared to one in 2,800 in developed countries². In middle and low-income countries many women have insufficient access to a full set of SRH services, and their SRHR are not respected or protected⁵. In developing countries, about 239

mothers per 100,000 live births in low and middle-income countries (LMIC) die compared to 12 mothers per 100,000 live births in developed countries from associated complications during childbirth and in the postpartum period⁶. Maternal mortality in LMIC has been associated with a lack of access to interventions for preventing pregnancy, as well as a lack of skilled antenatal and postnatal care⁷. Following the global trend of strong advocacy for the domestication of the tenets of SRH in respective countries and societies of the world, Nigeria was one of the first nations in sub-Saharan Africa to make adoptive policy statements⁸. Nigeria adopted the Regional Reproductive Health Strategy in 1998 and endorsed all the components of SRH as entrenched in the ICPD platform for action except "the provision of safe abortion services," which is against the law in Nigeria⁸. Nigeria equally signed on to the Sustainable Development Goals (SDGs) with its array of implications for reproductive health⁹. Some states of the country, particularly in northern Nigeria, have commenced domestication of the concept of SRH through their HIV/AIDS and Family Life Education programs¹⁰.

Studies conducted among young women have revealed deficiencies in knowledge and perception of SRHR in developing countries, including Nigeria¹¹⁻¹³. There is, however, a paucity of studies exploring factors associated with knowledge and attitude about SRHR, most especially in the northern part of the country. This study is targeted at assessing knowledge of and attitude to SRHR and associated factors among women of reproductive age group in an urban north-western Nigerian community.

MATERIAL AND METHODS

Study Setting and Period. The study was conducted from September to October 2019 in Kaduna South Local Government Area (LGA), Kaduna State, Northwest Nigeria. It has an area of about 59 km² and an estimated population of 402,390¹⁴. The settlement is typically urban and located within the Kaduna metropolis. It has a total of 13 political wards with about 117 health care facilities of which 28 are government-owned, of which one is a tertiary facility, three are secondary and twenty-four are primary health facilities.

Study Design

The study employed a descriptive cross-sectional study design. *Source and Study Population.* All women of reproductive age group residing in Kaduna South LGA were the source population, while randomly selected women who fulfilled the inclusion criteria were the study population

Inclusion and Exclusion Criteria

All women aged 15 - 49 years that were willing to participate in the study were included. Women who were sick at the time of data collection were excluded

Sample Size Determination

The minimum sample size was determined using single population formula $[n = z^2 p (1 - p) / d^2]$, where z is the normal standard deviation set at 1.96, with a confidence level specified at 95% and a tolerable margin of error (d) at 5%, considering 10% non-response rate and proportion of women with good knowledge of SRHR from a previous study (11%)¹⁶. The calculated sample size was 239. A total of 240 women were selected through a multistage sampling technique.

Sampling Procedure.

One political ward was selected from the 13 existing wards using simple random sampling. One community was selected from the political ward using simple random sampling. All the streets in the community were numbered and twelve streets were selected by simple random sampling technique. On each selected street, 20 houses were selected using a systematic random sampling technique. In the final stage, one eligible woman per household was randomly selected.

Data collection tools

Data were collected using an interviewer-administered questionnaire adapted from previous studies conducted on this subject matter^{13,16,17}. The questionnaire contained information on the socio-demographic characteristics of the women and their knowledge of and attitude about SRHR

Data Quality Assurance

Data collectors were trained on the objectives of the study, data collection methods, the importance of privacy, the confidentiality of the respondents, the sensitivity of the topic and the approach to the interviewees. The questionnaire was pretested on 5% of the study sample in a similar community but different LGA from the study LGA. Relevant modifications were made to the tools based on the findings from the pre-test before the commencement of data collection. Throughout the process of data collection, the interviewers were supervised. Regular meetings were held between the data collectors, the supervisor and the principal investigator to address any issues that arose during data collection. Collected data were checked for completeness before the commencement of data entry.

Data Analysis.

Data were entered into SPSS version 25 for statistical analysis. Descriptive statistical analysis was used to compute frequencies, percentages and means for dependent and independent variables. Knowledge was assessed with 18 questions; a correct answer was scored two marks and zero marks for an incorrect or I don't know the answer. Attitude was assessed with seven questions and a four-point Likert scale (strongly disagree to strongly agree). Overall knowledge scores were graded as high (\geq mean) and poor ($<$ mean). Attitude scores were graded as positive (\geq mean) and negative ($<$ mean). Binary logistic regression analysis was used to ascertain the association between the outcome variable and explanatory variables. Variables with an association in the bivariate analysis underwent a multivariable analysis to determine the independent predictors of knowledge of and attitude about SRHR. *P* values <0.05 were considered statistically significant. The dependent variables were knowledge of and attitude about SRHR. The independent variables considered included socio-demographic characteristics like age, ethnicity, marital status, education and occupation of the women.

RESULTS

Sociodemographic Characteristics of the Study Participants. The mean age of the respondents was 27.9 (± 9.9) years. Most of the women had secondary school education (61.7%). Larger proportions were Hausa in ethnicity (141, 58.8%), 117 (48.8%) married and 88 (36.7%) informally employed (Table 1).

Knowledge of sexual and reproductive health rights. Of the 240 respondents, only 107 (44.6%) had ever heard about SRHR, their most common

Table 1: Socio-demographic Characteristics of Women in Kaduna South LGA, Kaduna State (N = 240)

Variables	Frequency	Percentage
Age group (years)		
15-24	102	42.5
25-34	72	30.0
35-44	42	17.5
45-49	24	10.0
Ethnicity		
Hausa	141	58.8
Yoruba	7	2.9
Igbo	3	1.3
Southern Kaduna tribes*	26	10.8
Others**	66	27.5
Marital status		
Single	93	38.8
Married	117	48.8
Divorced/Widowed	30	12.5
Educational background		
No formal education	22	9.2
Primary	42	17.5
Secondary	148	61.7
Tertiary	28	11.7
Occupation		
Housewife	65	27.1
Formal employee	15	6.3
Informal employee	88	36.7
Students	72	30.0

Southern Kaduna tribes include Bhajju, Adara, Gbagyi, etc Others include** Nupe, Igala, Fulani, Babur etc*

sources of information were from friends (74.8%) and the hospital (71.0%). More than half (56.1%) of them ironically said that a man should get sex whenever he wants irrespective of his wife's wishes. Less than half (47.7%) said women had the right to make reproductive choices concerning their health without their husbands' consent. Only 29%

of those that had heard of SRHR knew that a married woman has the right to limit the number of children without her husband's consent. Overall, respondents had poor knowledge about SRHR, a majority (56.7%) scored less than the mean knowledge scores. The respondents were however knowledgeable about some questions asked, 88.8% and 76.6% knew that sexual and reproductive health rights are basic human rights and that women had the right to keep their use of reproductive health services confidential respectively (Table 2).

Among those who identified SRHR the commonest mentioned were the right to receive full information, the right to health care before,

Table 2: Respondents' knowledge about sexual and reproductive health rights

Variables	Frequency (%)
Awareness of SRHR	
Yes	107 (44.6%)
No	133 (55.4%)
Source of information (n=107)	
Hospital	76(71.0)
Radio/television	49(45.8)
Social media/internet	17(15.9)
Awareness programmes/seminars	3(2.8)
School	60(56.1)
Friends/family	80 (74.8)
General knowledge of SRHR (n=107)	
Sexual and reproductive health rights basic human rights	95 (88.8)
Women have the right to make reproductive choices concerning their health without their husbands' consent	51 (47.7)
A married woman has the right to limit the number of her children according to her desire without her husband's consent	60 (56.1)
A husband does not have to share child care responsibilities	31 (29.0)
Women have the right to keep their use of reproductive health Services confidential	50 (46.7)
Women have a full right to access all reproductive health services without their husbands' consent	82(76.6)
Women have a full right to access all reproductive health services without their husbands' consent	60 (56.1)

Southern Kaduna tribes include* Bhajju, Adara, Gbagyi, etc Others include**Nupe, Igala, Fulani, Babur etc

during and after pregnancy; and the right to attain the highest standard of SRH by 103 (96.3%), 100 (93.5%) and 97 (90.7%) respondents respectively (Table 3).

Attitudes of the respondents about sexual and reproductive health rights.

A larger proportion of the respondents (133, 55.4%) had positive attitudes about SRHR. The

Table 3: Sexual and reproductive health rights identified by women in Kaduna South LGA, Kaduna State (N = 107)

Sexual and reproductive health rights	Yes Frequency (%)
Right to consent to marriage	96 (89.70)
Right to receive information concerning health	103 (96.3)
Right to health services/programmes	97 (90.7)
Right to family planning	93 (86.9)
Right to health care before, during and after pregnancy	100 (93.5)
Right to make your own decisions concerning your health	95(88.8)
Right to bodily autonomy/decide the time for sex	87 (81.3)
Right to choose how many children you want and when you want to have them	78 (72.9)
Right to be free from/treated without discrimination, abuse or violence	94 (87.9)
Right to keep or terminate an unwanted pregnancy	45 (42.5)

majority of respondents 238 (99.2%), 233 (97.1%), 231 (96.3%) agreed that women should have the right to SRH information; the right to SRH care; and the right to be free from discrimination, abuse or violence, respectively (Table 4) Two hundred and twenty-three (92.9%) and 183 (76.2%) respondents agreed that women should have the right to make free choices regarding their SRH and should have access to modern contraceptives, respectively. While only 101 (42.1%) and 95 (39.6.2%) respondents agreed that women have the right to refuse consent to having sex with their spouses when they didn't want it and the right to terminate an unwanted pregnancy, respectively (Table 4).

Binary logistic regression analysis was conducted to see the relationship between the dependent variable (women's knowledge/attitude) and the independent variables. Ethnicity, educational levels and occupational status of women were found to have associations with knowledge at a p-value < 0.05 (Tables 5).

Table 4: Attitude of women in Kaduna South LGA, Kaduna State towards sexual and reproductive health rights (N=240)

Variables	Strongly Agree Freq.%	Agree Freq.%	Disagree Freq.%	Strongly Disagree Freq.%
Women should have the right to sexual and reproductive health Information.	168 (70.0)	70 (29.2)	0 (0)	2 (0.8)
Women should have the right to sexual and reproductive health care.	151 (62.9)	82 (34.2)	6 (2.5)	1 (0.4)
Women should have the right to make free choices regarding their sexual and reproductive health	110 (45.8)	113(47.1)	13 (5.4)	4 (1.7)
Women have the right to refuse consent to having sex with their spouses against their wishes.	60 (25.0)	41 (17.1)	64 (26.7)	75 (31.3)
Women should have access to modern contraceptives.	79 (32.9)	104 (43.3)	41 (17.1)	16 (6.7)
Women should have the right to terminate an unwanted pregnancy.	49 (20.4)	46 (19.2)	75 (31.3)	70 (29.2)
Women should have the right to be free from discrimination, abuse or violence.	166 (69.2)	65 (27.1)	7 (2.9)	2 (0.8)

Factors associated knowledge and attitude about sexual and reproductive health rights.

Table 5: Socio-demographic characteristics associated with sexual and reproductive health knowledge of women in Kaduna South LGA, Kaduna State (N = 240)

Variables	Poor Knowledge	High Knowledge	P-value	COR 95% CI	P-value	AOR 95% CI
Age group (years)						
15-24	57	45	0.607	1.482(0.331-6.634)		
25-34	36	36	0.859	1.123(0.312-4.044)		
35-44	26	16	0.769	0.825(0.228-2.989)		
45-49	17	7	1	1		
Ethnicity						
Hausa	95	46	1	1	1	1
Yoruba	4	3	0.923	0.915 (0.148-5.651)	0.925	1.083 (0.208 - 5.643)
Southern Kaduna tribes*	7	22	0.001	5.873(2.020-17.071)	≤ 0.001	6.828(2.497- 18.673)
Others**	30	33	0.012	2.319 (1.199-4.485)	0.009	2.308(1.238- 4.303)
Marital status						
Single	50	43	0.941	1.057 (0.240-4.653)		
Married	64	53	0.203	1.972 (0.694-5.609)		
Divorced/ Widowed	8	3	1	1		
Educational background						
No formal education	17	5	1	1	1	1
Primary	30	12	0.998	1.002 (0.277-3.619)	0.891	1.090 (0.317 - 3.753)
Secondary	82	66	0.183	2.393 (0. 663-8.636)	0.177	2.094 (0.716 - 6.121)
Tertiary	7	21	0.005	9.851(1.999-48.552)	0.001	8.944(2.331- 34.321)
Occupation						
Housewife	44	21	0.885	0.914 (0.270-3.090)		
Formal employee	4	11	0.257	3.160 (0.505-12.820)		
Informal employee	46	42	0.150	2.168 (0.760-6.042)		
Student	42	30	1	1		

Southern Kaduna tribes include* Bhajju, Adara, Gbagyi, etc Others include** Nupe, Igala, Fulani, Babur etc

Multivariable analysis conducted on the above variables indicated that women's ethnicity (adjusted odds ratio [AOR] = 6.83, 95% CI = (2.50- 18.67) and educational status (AOR = 8.94, 95% CI = (2.33- 34.32) were independent predictors of knowledge of SRHR (Table 5).

Concerning the attitude of women, binary logistic regression analysis revealed associations between the educational levels and occupation of women and their attitude about SRHR at a P-value <0.05. Multivariable analysis showed women educational levels (AOR = 6.72, 95% CI = (1.80- 25.16) as an independent predictor of attitude

about SRHR at a P-value <0.05 (Table 6).

DISCUSSION

This study assessed the knowledge and attitude towards SRHR among women of reproductive age group in Kaduna south LGA, Kaduna state. The study revealed that 44.6% of the women had ever heard about SRHR. This figure is lower than that of similar studies conducted in Ethiopia and in Ibadan and Ikeja, south-western Nigeria where 54.5%, 67.1% and 60% of women were aware of SRHR, respectively^{16,17,18}. It is also higher than reports from a study conducted in Nepal, which showed that only 37% of women were aware of SRHR¹⁹. Another study conducted in Ibadan, Nigeria, similarly revealed a significantly low percentage of 32.9% of the respondents that had never heard of SRHRs¹². The authors reasoned that it might have been because the concept of reproductive health and rights was relatively new in Nigeria. The variation in the levels of awareness about SRHR might be because of differences in the socio-demographic characteristics and exposure levels of respondents to information about SRHR. Of the women that were aware of SRHR in this study, a majority (about 70%) received the information from hospitals. This was in agreement with the findings of a similar study conducted in Ibadan south-western Nigeria, where the majority of the respondents had hospitals as their source of information about SRHR¹³. This study revealed overall that only 43.3% of the respondents had good knowledge about SRHR. This figure is lower than that of a study conducted in Shire town, in Ethiopia which reported good levels of knowledge about SRHS among 47.1% of the study respondents²⁰. Higher levels of knowledge were

Table:6 Socio-demographic characteristics associated with the attitude of women of Kaduna South LGA, Kaduna State towards sexual and reproductive health rights (N= 240)

Variables	Poor attitude	Good attitude	P-value	COR 95% CI	P-value	AOR 95% CI
Age group (years)						
15-24	42	60	0.563	1.510(0.374-6.095)		
25-34	29	43	0.474	1.537 (0.474-4.983)		
35-44	20	22	0.533	1.445(0.454-4.597)		
45-49	16	8	1	1		
Ethnicity						
Hausa	66	75	1	1		
Yoruba	1	6	0.198	4.449(0.458-43.226)		
Southern Kaduna tribes	10	19	0.942	0.965(0.376-2.479)		
Others**	30	33	0.755	0.904(0.479-1.704)		
Marital status						
Single	36	57	0.175	2.754(0.638-11.887)		
Married	53	64	0.189	1.926 (0.725-5.117)		
Divorced/Widowed	18	12	1	1		
Educational background						
No formal education	7	15	1	1	1	1
Primary	25	17	0.628	1.321(0.428-4.077)	0.464	1.510 (0.502-4.543)
Secondary	59	89	0.072	2.849(0.910-8.921)	0.006	4.135 (1.500-11.398)
Tertiary	8	20	0.046	4.319(1.027-18.173)	0.005	6.724(1.797-25.159)
Occupation						
Housewife	34	31	0.567	1.431(0.419-4.888)	0.920	1.037 (0.508-2.119)
Formal employee	5	10	0.513	1.683(0.354-8.007)	0.577	1.442 (0.398-5.219)
Informal employee	36	52	0.048	3.083(1.012-9.389)	0.064	1.958 (0.961-3.991)
Student	32	40	1	1	1	1

Southern Kaduna tribes include Bhajju, Adara, Gbagyi, etc Others include** Nupe, Igala, Fulani, Babur etc*

reported from similar studies conducted in East Gojjam, Ethiopia and Nepal where 67% and 68.3% of women had good levels of knowledge about SRHR^{21,22}. A study conducted in Kwara State, north-central Nigeria however, reported much lower levels of knowledge than the findings of this study with only 17% of respondents reporting good knowledge of SRHR¹⁵. Another study conducted in Kaduna, North-west Nigeria also collaborated the findings of this study on inadequate knowledge of women about SRHR²³. Only 29% of the respondents had ever heard of SRHR and the study concluded that inadequate knowledge was primarily due to lack of information about SRHR. The generally inadequate knowledge of SRHR elicited in this study could be also related to a lack of exposure to information about SRHR among respondents. This highlights the need to mount strategic educational interventions at health facility and community levels to disseminate accurate information about SRHR to women. Concerning respondents' attitudes towards SRHR, this study revealed that more than half of the women (55.4%) had positive or favourable attitudes towards SRHR. This was similar to what was found in a Northwest Ethiopian-based study where about 53.4% of the respondents had favourable attitudes towards SRHR²⁴. But higher than what was found in studies conducted in Bale town and Machekel District Ethiopia where lower proportions of women, 39.5% and 46%, respectively were reported to have favourable attitudes towards SRHR^{25,26}. Another study conducted in Ibadan Nigeria similarly to the findings of this study had a higher proportion of respondents with positive than negative attitudes towards SRHR¹³. It is a though a concern that a significant percentage (44.6%) of respondents in this study had negative attitudes towards SRHR. The implications of which could expose these women to exploitation and violation of their rights

and subsequently result in ill-health. Community-based awareness activities are strategic tools that can be used to pass accurate information and improve knowledge and encourage attitudinal changes towards SRHR²⁷. The study revealed that women who had good knowledge about SRHR issues were significantly more likely to be from Southern Kaduna tribes as compared to those from Hausa tribes. They were also more likely to have a higher level of education as compared to those that had no formal education. This result is supported by literature from Nigeria that has demonstrated the relationship between educational attainment and ethnicity, which is differentiated by religion and lifestyle²⁸. The educational attainments among the Hausa/Fulani, the major ethnic group in the northern part of Nigeria that practises Sharia or Islamic law, have been reported as lower as compared with other ethnic groups^{28,29}. Studies in other countries also have reported on the variation in knowledge across the components of sexual literacy with different race-ethnic groups concerned about different aspects of reproductive health^{30,31}. Studies conducted in Ethiopia similarly showed significant associations between levels of women's education and knowledge of SRHR as shown in this study^{16,24}. This might be because education expands the opportunities to engage with different people from various fields and expand knowledge, including exposure to SRH issues from the school curriculum. Other reasons highlighted for this relationship are education's effects on changing preferences and on changing women's choices or opportunities to achieve their preferences e.g., knowledge and income³². Others have postulated that education increases autonomy for women, enabling them to achieve their preferences by negotiating family planning decisions with their partners, and empowering them to engage effectively with healthcare

providers³³. The study also revealed that women with secondary and tertiary educational levels were 4 and 7 times more likely to have better attitudes towards SRHR than those with no formal education. This relationship agrees with studies that have established the effects of increased grade attainment on more equitable gender attitudes to reproductive issues ranging from women refusing sex with husbands, disapproval of wife-beating, attitudes toward domestic violence and decisions about their healthcare^{34,35,36}. Religion though not elicited in the findings of this study has been shown to play a vital role in impacting on SRHRs knowledge, attitude and acceptability among communities in Nigeria²³. Religious fundamental groups have continuously opposed the promotion of sexual reproductive health and rights services among members³⁷. The Catholic Christians view on contraception had a detrimental effect on family planning services, and this has resulted in unfavourable attitudes by many of their followers³⁷. It was similarly found in some regions of Africa that spouses do not discuss sexuality matters because it is against their cultural beliefs and women fear embarrassment³⁸. Other factors that have also been implicated in affecting the knowledge and attitude of women towards SRHRs include socioeconomic factors and availability of skilled personnel and poor good health services^{39,40}. Socioeconomic inequalities are common in developing countries and have led to health risks associated with sexual reproductive health and rights³⁹. While a Saudi Arabian study highlighted how inadequately skilled personnel and poor health services especially in the rural communities contributed to the inability of women to make informed decisions on sexual reproductive health and rights⁴⁰. There is a paucity of studies conducted in Nigeria that explore factors

associated with knowledge and attitude towards SRHR necessitating the need for further studies in this subject area

CONCLUSION

In this study, a majority of women had poor knowledge and a considerable proportion had poor attitudes towards SRHR. The study identified women's ethnicity and educational level as significant predictors of their knowledge about SRHR. The educational level of women was also found to be a predictor of their attitude towards SRHR. These findings suggest that strengthening women's education might improve the knowledge and attitude towards SRHR. The findings highlight the importance of exploring ethnic differentiation in SRH knowledge in the Nigerian context and advancing education and opportunities for women in northern Nigeria.

Limitations of the Study.

There is the possibility that respondents might provide socially desirable responses because the study deals with culturally sensitive issues. We from the onset of the study assured the respondents of the confidentiality of any of their responses. Also, the study is cross-sectional and cannot indicate causality.

Abbreviations

SRHR: Sexual and reproductive health rights

SRH: Sexual and reproductive health

ICPD: International Conference on Population and Development

LGA: Local Government Area

AOR: Adjusted odds ratio

COR: Crude odds ratio

CI: Confidence interval

Data Availability

The data used to support the findings of this study are available from the corresponding author upon formal request.

Ethical Approval

Ethical approval and clearance were received from the Health Research and Ethics Committee (HREC) of the Barau Dikko Teaching Hospital-Kaduna State University, Kaduna, Nigeria (BDTH_HREC 20-0075). Permission was sought from the Local Government Area Chairman, the District head of the selected ward and all the heads of the selected households before the commencement of the study. The purpose of the study was explained to the respondents, verbal consent was obtained before starting data collection.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

NAG conceived the study. NAG, HAM, UNO, ONV, OAM, and AIA contributed to the survey design and data collection. NAG, HAM and UNO contributed to the data analysis. All authors contributed to the interpretation of data and intellectual revision of multiple drafts. NAG and HAM drafted the manuscript. All authors approved the final version of the manuscript.

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REFERENCES

1. Starrs AM, Ezeh AC, Barker G, Basu A, Bertrand JT, Blum R, Coll-Seck AM, Grover A, Laski L, Roa M, Sathar ZA. Accelerate progress sexual and reproductive health and rights for all: report of the GuttmacherLancet Commission. *The Lancet*. 2018 Jun 30;391(10140):2642-92.
2. Department for International Development (DFID). Sexual and reproductive health and rights A position paper. DFID, UK, 2004. Available at https://www2.ohchr.org/english/issues/development/docs/rights_reproductive_health.pdf
3. United Nations. International conference on population and development, Cairo 513 September 1994. Programme of action, United Nations, Dept. for Economic and Social Information and Policy Analysis, New York 1995.
4. Griffin S. Literature review on sexual and reproductive health rights: universal access to services, focussing on East and Southern Africa and South Asia. Panos, London: Department for International Development. 2006.
5. Schäferhoff M, van Hoog A, Martinez A, Fewer A, Yamey G. Funding for sexual and reproductive health and rights in low-and middle-income countries: Threats, outlook and opportunities. The Partnership for Maternal, Newborn & Child Health. World Health Organization. 2019.
6. World Health Organization. Maternal Mortality. The world health Organization, Geneva, Switzerland 2018. Accessed from

- <http://www.who.int/news-room/fact-sheets/detail/maternal-mortality> [Cited 5 May 2021]
7. World Health Organization. Newborns: Reducing mortality. The world health Organization, Geneva, Switzerland 2018. Accessed from <http://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality> [Cited 5 May 2021]
 8. Morris JL, Rushwan H. Adolescent sexual and reproductive health: The global challenges. *International Journal of Gynecology & Obstetrics*. 2015 Oct;131: S40-2.
 9. Ministry of Health, Nigeria. National Reproductive Health Policy and Strategy to Achieve Quality Reproductive and Sexual Health for All Nigerians. Federal Ministry of Health, Abuja, Nigeria 2001 Accessed from <https://cheld.org/wp-content/uploads/2012/04/Nigeria-National-Reproductive-Health-Policy-and-Strategy.pdf>. [Cited 22 May 2021]
 10. Omo Aghoja L. Sexual and reproductive health: Concepts and current status among Nigerians. *African Journal of Medical and Health sciences*. 2013;12(2):103.
 11. Adinew YM, Worku AG, Menesha ZB. Knowledge of reproductive and sexual rights among University students in Ethiopia. Institution-based cross-sectional studies. *BMC Int Health Hum Rights* 2013; 13:12. doi: 10.1186/1472-698X-13-12
 12. Egemba MN, Ajuwon AJ. Knowledge and perceptions of reproductive rights among female postgraduate students of the University of Ibadan, Nigeria. *Afr J Biomed Res* 2015; 18:95107.
 13. Makinde OA, Adebayo AM. Knowledge and perception of sexual and reproductive rights among married women in Nigeria. *Sexual and reproductive health matters*. 2020 Jan 1;28(1):1731297.
 14. National Population Commission (NPC). Population Census of the Federal Republic of Nigeria 2006. Abuja, Nigeria: National Population Commission 2006.
 15. Taofiq A, Shuaib A, Abiola Q. Knowledge and Attitude to Sexual and Reproductive Health Rights among Reproductive age women (RAW) in Malete, Kwara state. *Global Journal of Management*. 2019.1(19):1-9.
 16. Adinew YM, Worku AG, Mengesha ZB. Knowledge of reproductive and sexual rights among University students in Ethiopia: institution-based cross-sectional. *BMC Int Health Human Rights*, 2013 Dec 1;13(1):12.
 17. Egemba, M N Ajuwon, A J. Knowledge and Perceptions of Reproductive Rights among Female Postgraduate Students of the University of Ibadan. Nigeria. *African Journal of Biomedical Research*.2015;18(2):95-107,
 18. Ogunlayi, Munirat Ayoka. An Assessment of the Awareness of Sexual and Reproductive Rights among Adolescents in South-Western Nigeria. *African Journal of Reproductive Health*.2005; 19. 99-112.
 19. Yadav, Rajesh Kumar Gahatraj, Nand Ram Yadav, Dipendra Kumar Marahatta, Sujan Babu. Knowledge and Practice on Reproductive Health Rights among Married Women in Nepal. 2016; 5(1) 53-57.
 20. Gebretsadik GG, Weldearegay GG. Knowledge on reproductive and sexual rights and associated factors among youths, Shire town, Tigray, Northern Ethiopia *International Journal of Research in Pharmacy & Science*.

- 2016 Apr 1; 6(2) 30-37.
21. Kaphle, Manju Science, Allied. Awareness and Utilization of Reproductive Rights Among the Women of Reproductive Age in Kapan VDC, Nepal, 2013; 3(1)5-9.
 22. Abajobir AA, Seme A. Reproductive health knowledge and services utilization among rural adolescents in east Gojjam zone, Ethiopia: a community-based cross-sectional study. *BMC health services research*. 2014; 1-11. 23.
 23. Habibu M. Sexual Reproductive Health and Rights: Knowledge and Acceptability among Students of Kaduna Polytechnic, Kaduna, Nigeria. London: Department of Life Sciences, University of Roehampton London; 2017.
 24. Ayalew, M, Nigatu, D, Sitotaw, G, Debie, A. Knowledge and attitude towards sexual and reproductive health rights and associated factors among Adet Tana aHaik College students, Northwest Ethiopia: a cross-sectional study. *BMC Research Notes*, 2019;12(1):80.
 25. Nigatu D, Gebremariam A, Abera M, Setegn TDK. Factors associated with women's autonomy regarding maternal and child health care utilization in bale zone: a community based cross-sectional study. *BMC Women's Heal*. 2014;14(1):19.
 26. Wassachew Ashebir, Mengistu Tadesse, Belete Yimer. Knowledge and Attitude towards Sexual and Reproductive Health Rights and Associated Factors among High School Students in Machakel District, Northwest Ethiopia. *Journal of Food System Research*, 2007; 14(2) 70-75
 27. McGranahan M, Bruno-McClung E, Nakyeyune J, Nsibirwa DA, Baguma C, Ogwang C, Serunjogi F, Nakalembe J, Kayaga M, Sekalala S, Oyebode O. Realising sexual and reproductive health and rights of adolescent girls and young women living in slums in Uganda: a qualitative study. *Reproductive health*. 2021 Dec;18(1):1-1.
 28. Odimegwu C, Somefun OD. Ethnicity, gender and risky sexual behaviour among Nigerian youth: an alternative explanation. *Reproductive health*. 2017 Dec;14(1):1-5.
 29. Stonawski M, Potančoková M, Cantele M, Skirbekk V. The changing religious composition of Nigeria: causes and implications of demographic divergence. *The Journal of Modern African Studies*. 2016;54(03):361-87.
 30. Dehlendorf C, Rodriguez MI, Levy K, Borrero S, Steinauer J *Am J Obstet Gynecol*. 2010 Mar; 202(3):214-20.
 31. Venkat Pavithra, Masch Rachel, Ng Eliza, Cremer Miriam, Richman Sue, Arslan Alan. Knowledge and Beliefs about Contraception in Urban Latina Women. *Journal of Community Health*. 2008; 33:357362.
 32. Psaki SR, Chuang EK, Melnikas AJ, Wilson DB, Mensch BS. Causal effects of education on sexual and reproductive health in low and middle-income countries: A systematic review and meta-analysis. *SSM-population health*. 2019 Aug 1; 8:100386.
 33. LeVine Robert A, LeVine Sarah, Schnell-Anzola Beatrice, Rowe Meredith L, Dexter Emily. *Literacy and Mothering: How women's schooling changes the lives of the world's children*. Oxford University Press; New York: 2012.
 34. Mocan N.H, Cannonier C. Empowering women through education: Evidence from Sierra Leone. *National Bureau of Economic Research*; 2012.
 35. Grépin K.A., Bharadwaj P. Maternal

- education and child mortality in Zimbabwe. *Journal of Health Economics*. 2015; 44:97117. K.A., Bharadwaj P. Maternal education and child mortality in Zimbabwe. *Journal of Health Economics*. 2015; 44:97117.
36. Tequamem M, Tirivayi N. Higher Education and Fertility: Evidence from a Natural Experiment in Ethiopia. MERIT Working Papers 019, United Nations University Maastricht Economic and Social Research Institute on Innovation and Technology 2015.
37. Griffin S. Literature review on Sexual and Reproductive Health Rights: Universal Access to Services, focusing on East and Southern Africa and South Asia. Panos, London: Department of International Development. .2006. Available from: <http://panosrelay.panosnetwork.org/wp-content/static/2011/05/SRH-Literature-review.pdf>.
38. Gwatimba L, Raselekoane NR, Nwafor AO. Obstacles to the realization of women's reproductive health rights in Zimbabwe. *African Journal of Reproductive Health*. 2020 Dec 3;24(3):146-53.
39. Ogundele OJ, Pavlova M, Groot W. Socioeconomic inequalities in reproductive health care services across Sub-Saharan Africa. A systematic review and meta-analysis. *Sexual & Reproductive Healthcare*. 2020 Oct 1;25:100536.
40. Farih M, Khan K, Freeth D, Meads C. Protocol study: sexual and reproductive health knowledge, information-seeking behaviour and attitudes among Saudi women: a questionnaire survey of university students. *Reproductive health*. 2014 Dec;11(1):1-5.