Impact of Health Literacy on Contraceptive Knowledge, Attitude and Use among the Nigerian Adult Population

ABSTRACT

Background and Objectives: Many studies have explored associated and determining factors regarding contraceptive prevalence and use as well as the disparities in contraceptive use based on different regions in Nigeria but none has made effort to establish the influence of health literacy on contraceptive knowledge, attitude and use. This study, therefore, attempted to examine the impact of health literacy on Nigerian adults' contraceptive knowledge, attitude and use.

Material and Methods: The study adopted a descriptive cross-sectional research design and the population of the study consisted of Nigerians who are 18 years and above and reside in any part of the country. A non-probability sampling technique was adopted and a questionnaire was the main instrument of data collection for this study. A total of 426 participants participated in the study. Frequency count, simple percentages, mean, standard deviation, T-test, one-way ANOVA, regression and correlational analysis were used to analyse the data generated from the study.

Results: The study indicated that 90.6% of the Nigerian adult population has adequate health literacy, and 53.8% of them have poor contraceptive knowledge. Similarly, 65.7% of the participants have positive attitudes towards contraception while 58.2% of the participants' contraceptive use is high. Further, health literacy was shown to have a significant but weak positive impact on contraceptive knowledge ($r = 0.345$, $p<0.001$), attitudes toward contraception ($r = 0.362$, $p<0.001$), and contraceptive use ($r = 0.218$, $p<0.001$).

Conclusion: The study's results imply that many other factors aside from health literacy affect people's contraceptive knowledge, attitude and use. Hence, addressing the health literacy of adult Nigerians is only one aspect of improving contraceptive knowledge, attitude and use.

Paper Type: Research Article

Keywords: Health literacy; Contraceptive knowledge; Attitude; Use; Nigerian Adult population

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Introduction

Maintaining good health is a crucial aspect of life. It encompasses not only seeking medical attention, when necessary, but also possessing the necessary knowledge and understanding to prevent health issues, safeguard well-being, and effectively manage health concerns that arise (1). Thus, the foundation for making informed and effective health-related decisions and positively impacting one's healthcare lies in an individual's health literacy skills (2). Health literacy is defined as the individual skills and knowledge that allow a person to find, comprehend, evaluate, and utilize health information and services to maintain and improve their health and well-being, as well as that of those around them (3). It encompasses a person's capability to understand crucial health information such as dosage instructions, informed consent documents, acronyms, and other commonly used medical terms required to navigate complex health systems (4). Generally, the importance of health literacy in influencing the health and well-being of individuals and communities cannot be overemphasized. It has been observed that a lack of health literacy can lead to misunderstandings about preventive measures, treatments and access to care, which can result in a higher burden of disease and poor health outcomes. Conversely, higher levels of health literacy can improve health behaviours and increase access to health information, leading to better health outcomes including reproductive health (5, 6). This, therefore, made health literacy either a 'personal asset' or 'clinical risk' (7).

Reproductive health plays a significant role in affecting the health and happiness of individuals, families, communities, and societies as a whole. Reproductive health refers to a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system, including the ability to have children, have healthy pregnancies and births and prevent sexually transmitted infections (8). Implicit in the definition of reproductive health is the right of people to be informed and to have easy access to a safe, effective, affordable and acceptable method of family planning of their choice for regulation of their sex life. Therefore, having access to comprehensive, affordable sexual and reproductive health services and information, including a variety of contraception options, is crucial for promoting the rights and improving the overall well-being of both women and men. Ensuring universal access to reliable contraception methods allows individuals of all ages to prevent the negative health and financial impacts of unintended pregnancy and enjoy a fulfilling sexual life (9). However, meeting the unmet needs for contraception remains a critical challenge to countries especially developing countries and the global health community. While access to modern contraceptives in some settings is limited, in many other settings, it is unavailable. Service delivery, sociocultural and economic factors as well as inadequate contraceptive knowledge and low health literacy have continued to mar the effective use of contraceptives (10, 11, 12).

Nigeria is the most populous country in Africa and ranks sixth globally in terms of population, with an estimated 216 million residents and an annual population growth rate of about 2.5% (13, 14). The country moved from the 10th most populous country in 1990 with about 94 million population to become the 6th most populous nation in 2020 with 216 million population. By 2050, Nigeria is projected to become the 4th most populous country with 375 million inhabitants (13). An attributed factor to the country's rapid population growth is the high total fertility rate (TFR) estimated at 5.3 compared

to the global rate of 2.3 children per woman (15). Thus, the astronomical increase in the country's population portends great danger as it will be more difficult to eradicate poverty, combat hunger and malnutrition and increase the coverage of the health and education system already affecting the country (13). The major measure that could check this population growth rate is the promotion of contraceptive use among the populace. Studies have shown that a reduction in fertility rates has the potential to yield more demographic dividends with a consequential impact on poverty reduction and overall economic growth and well-being of individuals, families and communities. For instance, Ashraf et al. (16) observed that a reduction in fertility by one child per woman could lead to a 13% increase in Gross Domestic Product (GDP) per capita within 20 years. Equally, Nigeria has one of the highest maternal mortality rates in the world as this is evident from the fact that about 40% of maternal death in the country are due to complications arising from unsafe abortions (17). Abortion emanates from unwanted pregnancies that could have been effectively prevented through the use of contraceptives. Therefore, for Nigeria to achieve demographic dividends, reduce maternal mortality and enjoy the health benefits of contraceptive use, there is a need to increase contraceptive prevalence rates among its adult population (15).

To increase the contraceptive prevalence rate, the Nigerian government partnered with international development partners to launch the 2030 FP Commitment in March 2021. The FP 2030 aims to increase Nigerians' access to quality family planning and to engage stakeholders both at national and sub-national levels on policies that will drive family planning knowledge, uptake and tracking across the country (18). However, this effort has not been seen to yield many fruits

probably because it is still at the infant stage as the contraceptive prevalence rate especially among women is still very low in Nigeria. The modern contraceptive prevalence rate for women is currently at 12% and this requires serious intervention that would increase contraceptive awareness and use (18). Several factors affect contraceptive use among Nigerian adults. Some of these factors include the level of education, fertility preferences, exposure to media, spousal communication and autonomy. Other factors that are associated with contraceptive use in Nigeria are access to health facilities, availability and cost of contraceptives, religious and cultural norms, contraceptives awareness, women's fear of the side effects of contraceptives especially the perception that contraception may lead to infertility amongst others (19,20).

While various studies (19,21,22,23,24) in Nigeria have examined the prevalence of contraceptive use and its associated factors as well as the disparities in contraceptive use based on different regions in the country, none has made effort to establish the influence of health literacy on contraceptive knowledge, attitude and use. This study, therefore, makes a concerted effort to understand the predictive influence of health literacy on contraceptive knowledge, attitude and use among Nigerian adults. This is done with a strong belief that health literacy may play a crucial role in determining people's knowledge, attitude and use of contraception. Specifically, the study's researchers believed that health literacy may influence people's understanding of various types of contraception available and their effective use as well as their access to reproductive information and services. Therefore, our findings will provide an empirical basis to understand the level of influence health literacy have on people's contraceptive knowledge, attitude and use. This will provide

an opportunity for the government, NGOs, CBOs, international development partners and other stakeholders in the country to have an understanding of the impact of health literacy on contraceptive knowledge, attitude and use. It will also provide them with the opportunity to plan and implement various strategies that will improve the health literacy of people as an important step in promoting positive reproductive health behaviours and improving reproductive health outcomes among the Nigerian adult population.

Generally, this study intends to investigate the Nigerian adult population's levels of health literacy, contraceptive knowledge, attitude and use. Specifically, the study would attempt to examine the impact of health literacy on Nigerian adults' contraceptive knowledge, attitude and use. Also, the study would aim to understand the differences in health literacy, contraceptive knowledge, attitude and use based on demographic factors (sex, age, marital status, educational level, family size and employment status).

Materials and Methods
Design
The current study adopted a descriptive cross-sectional research design to investigate the impact of health literacy on contraceptive knowledge, attitude and use among the Nigerian adult population. The study utilized Google Forms, an online survey platform to administer the study's survey to the target population.

Study Population
The population of this study consist of Nigerians who are 18 years and above and reside in any part of the country.

Sample Size Determination
The sample size for this study was estimated to be 420 based on the calculation below;

$N = Z^2 P(1-p)/E^2$

$Z = 95\% = 1.96$

$P = 50\% = 0.5$

$1-P = 100\% - 50\% = 50\% = 0.5$

$E = 4.78\% = 0.0478$

$N = 1.96^2 \times 0.5 \times 0.5/0.0478^2$

$N = 420$

In all, a total of Four Hundred and twenty-six (426) adult Nigerians participated in the study.

Sampling Technique
A non-probability sampling technique (convenience and snowballing method) was adopted for the study. It was difficult for the researchers to draw a random probability-based sample for the study's population due to the infinite nature of the adult population in the country. Also, based on time and resource constraints, the researchers find the non-probability technique most appropriate to carry out the study.

Inclusion and Exclusion Criteria
The inclusion criteria for participation in this study are based on the attainment of the constitutionally stipulated adult age of 18, living in any part of the country and willingness to participate in the study.

Adult Nigerians who are below the adult age of 18 and those who do not have the required devices and internet to fill out the online survey were excluded from participating in the study.

Data Collection Procedure
The participants participated in the study through a survey designed by the researchers on Google Forms. The survey link generated from the web-based platform was sent to adult Nigerians via social media platforms (Facebook and WhatsApp). The researchers recruited participants through different work and academic social media groups. People were requested to help rebroadcast the survey link and recruit their friends and colleagues to participate in the

study. Before the administration of the survey to the participants, approval to conduct the study was obtained from the Department of Adult Education, University of Ibadan. Also, informed consent from the participants was obtained and they were assured of the confidentiality of the information provided before participating in the study. Data collection period span from October 28 to December 9, 2022.

Instrument

A questionnaire was the main instrument used for this study. The questionnaire consisted of 5 subsections (see appendix). The first subsection focused on the demographic characteristics (age, sex, marital status, religion, educational attainment, employment status and family size) of the participants. The second subsection focused on the health literacy skills of the participants while the third, fourth and fifth sub-sections focused on contraceptive knowledge, attitude and use respectively. Items used to measure health literacy were adapted from Health Literacy Scale (HLS) developed by Itasanmi et al. (25). The original HLS is a 17 items scale anchored on a 5 Likert scale (strongly agree=5, agree=4, neutral=3, disagree=2 and strongly disagree=1. This study adopted the 17 items but anchored it on a 4 Likert scale of strongly agree=4, agree=3, disagree=2 and strongly disagree=1. Items used to measure contraceptive knowledge, attitude and use were largely drawn from the studies of Agyei and Migadde (26), and Smitha, et.al (27). These items were anchored on a 4 Likert scale of never heard it /strongly disagree (1), heard but don't know it/disagree (2), know a little about it/ agree (3), and know it very well /strongly agree (4). A pilot test of the instrument among the population who do not form part of this study's population indicates a Cronbach coefficient of .96, .92, .95 and .84 for health literacy, contraceptive knowledge, attitude and use respectively.

Data Analysis

Descriptive statistics of frequency count, simple percentages, mean, standard deviation, and inferential statistics of T-test, one-way ANOVA, regression and correlational analysis were used to analyse the data generated from the study. Level of health literacy, knowledge of contraceptives, attitude towards contraceptives, and use of contraceptives were determined using the sum of the scores of the items in each section divided by the maximum score obtained and multiplied by 100. A score <60% is taken to be inadequate/ negative/low while a score 60% is taken as good/positive/high. For the bivariate analysis, the responses were summed and the full score regression and correlation analysis was used. P ≤ 0.05 was set as the level of significance. Age was categorized based on 18-40 years (Young Adult), 41-60 (Middle-aged adult) and 61 and above (Older Adult).

Results

Socio-demographic profile of participants

The results of the study indicate that the average age of the participants is 39 years. The majority of the participants (59.6%) were between the ages of 18 and 40 years old. More than half (59.6%) were female. Slightly more than three-quarters of the respondents (83.3%) were Christian, 16.2% were Muslim, and less than 1% practised other religions. A majority (62.9%) of the participants were married, 32.4% were single, and 4.5% were either divorced or separated. The majority (44.1%) of the participants had a first degree from a university or a higher national diploma from polytechnics, and 44.1% of the participants had postgraduate degrees. The employment status of the participants showed that the majority (63.1%) were employed, 28.4% were self-employed, and 8.5% were unemployed. The majority of participants (61.7%) had between 4 to 6 family

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members, 27.5% had 3 family members, and 10.8% had more than 6 family members.

Health Literacy, knowledge,Attitudes and Contraceptives use

Table 1 indicates that the majority (90.6%) of the Nigerian adult population have adequate health literacy while 9.4% have inadequate health literacy. result shows that 53.8% of the Nigerian adult population has poor knowledge about contraceptives while 46.2% of the population has good knowledge. result revealed that the majority (65.7%) of the adult population have a positive attitude towards contraceptives while 34.3% of them have a negative attitude towards contraceptives. Result about Contraceptive Use Level shows that the majority (58.2%) of the Nigerian adult population's contraceptive use is high while 41.8% of them have low use of contraceptives (table1)

Table 1: Health Literacy, knowledge,Attitudes and Contraceptives use among Nigerian Adult population

variable	subcategory	Frequency	Percentage
Health Literacy	Adequate Health Literacy	386	90.6
	Inadequate Health Literacy	20	9.4
Contraceptive Knowledge	Good Contraceptive Knowledge	197	46.2
	Poor Contraceptive Knowledge	229	53.8
Attitudes towards Contraceptives	Positive Attitude	280	65.7
	Negative Attitude	146	.4.3
Contraceptive Use	High Contraceptive use	280	65.7
	Low Contraceptive use	146	34.3

Health Literacy and Contraceptive Knowledge

Table 2 reveals the relationship between the participant's health literacy and contraceptive knowledge. The correlation analysis indicates that there is a significant but weak positive correlation ($r = 0.345$) between health literacy and contraceptive knowledge among the participants. The R-square (0.110) indicates that about 11.0% of the participant's knowledge of contraception can be explained by their level of health literacy, leaving 89.0% to be explained by other factors. Also, the regression analysis indicates that the proportion of health literacy in the model is 0.141, which implies that with any increase in the level of health literacy, the respondent's knowledge of contraception will increase by 14.1%. The p-value (<0.001) shows that health literacy is statistically significant in the model.

Table 2: Impact of health literacy on contraceptive knowledge among the Nigerian Adult population

	Regression Analysis			Correlation Analysis		
	Coefficient	Standard Error	P-value	Correlation value	R square	P-value
Constant	-0.057	0.973	0.953	0.345	0.110	0.000
Health Literacy	0.141	0.019	0.000			

Health Literacy and attitude towards Contraception

Table 3 shows the relationship between participants' health literacy and attitude towards contraception. The correlation analysis reveals that there is a significant but weak positive correlation (r = 0.362) between health literacy and respondents' attitudes toward contraception. The R-square (0.131) indicates that about 13.1% of the participants' attitudes toward contraception can be explained by their level of health literacy, leaving 86.9% to be explained by other factors. The regression analysis also shows that the proportion of health literacy in the model is 0.046, which implies that with any increase in the level of health literacy, the respondent's attitude towards contraception will increase by 4.6%. The p-value (<0.001) indicates that health literacy is statistically significant in the model.

Table 3: Impact of health literacy on attitude towards contraception among Nigerian Adult population

	Regression Analysis			Correlation Analysis		
	Coefficient	Standard Error	P-value	Correlation value	R square	P-value
Constant	22.428	2.397	0.000	0.362	0.131	0.000
Health Literacy	0.365	0.046	0.000

Health Literacy and Contraceptive Use

Table 4 shows the relationship between participants' health literacy and contraceptive use. The correlation analysis indicates that there is a significant but weak positive correlation (r = 0.218) between health literacy and contraceptive use among the participants. The R-square (0.048) indicates that about 4.80% of the participants' contraceptive use can be explained by their level of health literacy, leaving 95.20 per cent to be explained by other factors. The regression analysis equally shows that the proportion of health literacy in the model is 0.086, which implies that with any increase in the level of health literacy, contraceptive use among the participants will increase by 8.6%. The p-value (<0.001) shows that health literacy is statistically significant in the model.

Table 4: Impact of health literacy on contraceptive use among the Nigerian Adult population

	Regression Analysis			Correlation Analysis		
	Coefficient	Standard Error	P-value	Correlation value	R square	P-value
Constant	7.928	0.977	0.000	0.218	0.048	0.000
Health Literacy	0.086	0.019	0.000

The difference in Health Literacy, Contraceptive Knowledge, Attitude and use based on demographic factors

Table 5 shows that there is a gender difference in the respondents' contraception knowledge as female adults (mean = 7.7) have a higher contraception knowledge compared to the male (mean = 6.6). However, there exist no gender differences in health literacy, attitude towards contraception, and contraceptive use among the respondents. It was also revealed that there is a difference in the respondents' contraceptive knowledge based on age. Middle age adults (mean = 7.7) have higher

knowledge of contraceptives compared to young adults (mean = 6.9) and older adults (mean = 5.5). Further, respondents' knowledge of contraceptives and their use is different based on marital status. Adults who have either separated or divorced have better knowledge about contraceptives and use it (mean = 9.9/13.4) more than married (mean = 7.5/12.6) and single (mean = 6.1/11.7) adults.

Likewise, adult Nigerians who possess postgraduate degrees (mean = 12.8) use contraceptives more than those who are graduate (mean = 12.2) or non-graduate (mean = 11.3). Moreover, the table revealed that Nigerian adults who are self-employed (mean = 53.3) have higher health literacy skills compared to those employed (mean = 50.9) or unemployed (mean = 49.2).

Table 5: Socio-demographic difference in health literacy, contraceptive knowledge, attitude towards contraception and contraceptive use among the Nigerian Adult population

Variables	Health Literacy			Knowledge of Contraceptive			Attitude			Contraceptive use		
	Mean (SD)	t/F	p-value	Mean (SD)	t	p-value	Mean (SD)	t	p-value	Mean (SD)	t	p-value
Sex												
Male	50.6 (9.5)	1.721	0.086	6.6 (4.1)	2.656	0.008	41.8 (9.9)	1.234	0.218	12.4 (3.9)	0.350	0.727
Female	52.2 (10.4)			7.7 (4.0)			40.6 (10.2)			12.2 (4.0)		
Age												
18-40	52.0 (9.5)	1.867	0.156	6.9 (4.0)	2.912	0.049	41.2 (10.2)	0.041	0.960	12.3 (3.7)	0.078	0.925
41-60	50.9 (10.6)			7.7 (4.2)			41.3 (10.1)			12.2 (3.4)		
61+ RC	46.8 (11.4)			5.5 (4.4)			40.5 (10.1)			12.2 (43.9)		
Marital Status												
Single	50.8 (8.6)	0.431	0.650	6.1 (4.0)	10.54	0.000	39.8 (9.6)	2.349	0.097	11.7 (4.0)	3.218	0.041
Married	51.7 (10.8)			7.5 (4.1)			41.7 (10.2)			12.6 (3.9)		
Separated/ Divorced	52.1 (9.0)			9.9 (3.2)			43.9 (10.2)			13.4 (3.2)		
Educational Level												
Postgraduate	52.2 (10.7)	1.476	0.230	7.7 (4.3)	2.440	0.088	41.7 (10.4)	0.684	0.500	12.8 (3.9)	2.998	0.042
Graduate	50.5 (9.9)			6.8 (3.9)			41.2 (10.1)			12.2 (3.9)		
Non-graduate	51.8 (7.3)			6.7 (3.9)			39.8 (9.5)			11.3 (4.2)		
Family Size												
3	52.0 (9.6)	0.495	0.610	7.2 (4.4)	0.265	0.767	40.7 (11.0)	0.403	0.669	11.9 (4.1)	0.969	0.380
3-6	51.1 (10.6)			7.1 (4.0)			41.6 (9.8)			12.5 (4.0)		
Above 6	52.3 (7.5)			7.5 (4.1)			40.6 (10.1)			12.6 (4.0)		
Employment Status												
Employed	50.9 (10.5)	3.417	0.034	7.4 (4.0)	1.653	0.193	41.0 (9.9)	0.548	0.579	12.5 (4.3)	2.500	0.083
Self-Employed	53.3 (8.7)			6.6 (4.2)			42.0 (10.7)			10.9 (3.9)		
Unemployed	49.2 (9.7)			7.2 (4.1)			40.3 (9.6)			12.3 (3.9)		

Discussion

This study examined the Nigerian adult population's health literacy, contraceptive knowledge, attitude towards contraceptives, and contraceptive use levels. Also, the study attempted to investigate the predictive impact of health literacy on contraceptive knowledge, attitude and use as well as their demographic differences. Results of the study revealed that the majority (90.6%) of the Nigerian adult population have adequate health literacy. This result supports the results of previous studies that found the majority of their study's population to have adequate health literacy (28, 29, 30, 31, 32). For instance, Kuyinu et al. (28) and Svendsen et al. (30) found that 74.8% of Lagos State residents and 84.6% of Catalonia have adequate health literacy respectively. This result could be attributed to the fact that the majority of this study's participants have higher educational qualifications and this may have influenced their health literacy level. Many studies have established the fact that educational qualification plays a significant role in influencing people's health literacy skills (25, 33, 34, 35).

Results also indicated that over half of adult Nigerians have poor contraceptive knowledge. This result is consistent with the research finding of Ritter et al. (36) and further lent credence to the assertion made by Fayehun (37) that the lack of contraceptive knowledge among Nigerians is the key issue that makes contraceptive use incredibly low. However, the result contradicts the results of Adefalu et al. (24), Ukoji et al. (38), Durowade et al., (22), and Omo-aghoja et al., (19) on contraceptive knowledge in Nigeria. Further, results revealed that the majority of the Nigerian adult population has a positive attitude towards contraceptives. This result aligns with the research findings of Okafor et al. (39) and Ifeanyichukwu and Adetunji (40) who found the majority of their studies' population to have a positive attitude towards contraception. However, this result contrasts the research results of Ehiaghe and Barrow (41) and Adegboyega (42) who found the majority of people have a negative attitude towards contraceptives. Equally, it was revealed that the majority of adult Nigerians' contraceptive use is high. This result is consistence with the findings of Jeremiah et al. (43) but inconsistent with the report of the National Population Commission (NPC) (44) and Ekholuenetale et al. (45) that observed low use of contraceptives among Nigerians especially women of reproductive age.

Other findings of this study indicate that health literacy has a significant impact on contraceptive knowledge, attitude and use among the Nigerian adult population. This result was similar to findings from other studies (46, 47, 48, 49). It is the researchers' considered opinion that people with higher health literacy levels tend to be better equipped to obtain and process information about different methods of contraception, their benefits, and risks; have more positive attitudes towards contraception because there is a likelihood to view it as a necessary and responsible aspect of reproductive health; and understand instructions for use and follow them correctly, leading to consistent and effective use. In contrast, people with low health literacy may struggle to access or comprehend information, leading to a lack of knowledge about contraception. Lack of knowledge may therefore make them hold negative attitudes towards it which may invariably lead to incorrect or inconsistent use of contraceptives.

On the demographic difference in health literacy, contraceptive knowledge, attitude and use, results revealed that Nigerian adults who are self-employed have higher health literacy skills compared to those employed or

unemployed. This result could be attributed to the fact that self-employed people have more resources especially time and their income is based on their ability to work. They are likely to be more conscious of their health and be ready to navigate the healthcare system, including filling out complex health forms and locating health service providers. Ill health may limit self-employed people's ability to focus on business opportunities compared to employed and unemployed people (50). Also, results show that there exists a gender difference in contraception knowledge. Females have a higher contraception knowledge compared to males. This result is consistent with Ritter et al. (36) but inconsistent with Aljbli et al. (51). This particular result may be a result of the gender norms and roles in many African societies. Specifically, females are expected to take responsibility for contraception and reproductive health in many societies. As a result, they may have received more education and information about contraception than males. Equally, we found age differences in contraceptive knowledge as middle-aged adults have higher knowledge of contraceptives compared to young adults and older adults. This particular result is attributed to the fact that middle-aged adults may care more about having an understanding of all the viable choices of contraceptives available because of child spacing, irregular cycles and uncertainties surrounding fertility. They may want to weigh the side effect of each contraceptive and this might generally deepen their knowledge compared to younger and older adults who might just opt for the oral contraceptive pill or condoms for protection against unwanted pregnancy and sexually transmitted diseases. Likewise, adult Nigerians with postgraduate degrees use contraceptives more than those who are graduate or non-graduate. This result indicates the impact of education on contraceptive

use. Several studies (52, 53, 54, 55, 56) have established a positive association between educational levels and contraceptive use. The higher an individual's education level, the higher his propensity to use contraceptives (52).

Limitations and suggestions for future studies

The study's main limitation lies in the non-probabilistic sampling technique adopted to select the study's participants. This may have led to under-coverage and selection bias because many adult Nigerians would have been excluded from participating in the study. This, therefore, makes it difficult to generalize the study's findings. Also, the recruitment of participants through media platforms may have influenced the presence of adult Nigerians with higher education. This may have a significant effect on their health literacy, contraceptive knowledge and behaviour. As such, their health literacy, contraceptive knowledge and behaviour levels may have been overestimated, thus, not a true reflection of the entire Nigerian adult population's health literacy, contraceptive knowledge and behaviour. Notwithstanding, this study provides useful insights into the health literacy status, contraceptive knowledge, attitude and use among adult Nigerians. The study also provides information on the influence of health literacy on contraceptive knowledge, attitude and use. This could help the government, researchers, International Development Partners and other stakeholders in society to have a clear understanding of the subject matter with a view to engendering policy actions that can help promote health literacy and contraceptive use in the country. Future studies should consider the traditional method of questionnaire administration and endeavour to use a multi-stage sampling technique for the recruitment of participants This will make findings easily generalizable for the country.

Conclusion

The study found the majority of the Nigerian adult population has adequate health literacy. This result implies that despite limited access to quality health services, low levels of education and cultural beliefs that hinder the utilization of available health resources among Nigerians, the majority of the adult population in the country still have adequate health literacy skills. This, therefore, calls for more interventions from the government, NGOs, CBOs, international development partners and other stakeholders in the country to sustain and improve the education provision, increase access to health information, encourage health awareness campaigns and provide adequate financial support to aid further development of health literacy skills and competencies among individuals at all levels of Nigerian society. This will help to promote health literacy and improve health outcomes among Nigerians. Also, while it was established in this study that the majority of adult Nigerians have poor knowledge of contraception, they, however, have a positive attitude towards it and their contraceptive use is high. This, therefore, indicates that improving knowledge of contraception among adult Nigerians is the most essential element in increasing attitude and actual use of contraceptives. To achieve this, there is a need for a multi-faceted approach that includes increasing access to quality reproductive health information and services, improving education, addressing socio-cultural norms and beliefs and providing adequate support for reproductive health programmes. This will significantly increase knowledge about contraception with a consequential impact on attitude and use. The study also found contraceptive knowledge, attitude and use to be significantly influenced by health literacy. Though, this study only shows a slight influence of health literacy on contraceptive knowledge, attitude and use among adult Nigerians. This implies that many other factors affect people's contraceptive knowledge, attitude and use. Hence, addressing the health literacy of adult Nigerians is only one aspect of improving contraceptive knowledge, attitude and use. Furthermore, the result of the study found women to have better contraceptive knowledge compared to their male counterparts. This, therefore, calls for improved knowledge of contraceptives among men and concerted efforts should be made towards this to increase contraceptive use among the Nigerian populace.

Consent for publication: Not applicable

Availability of data and materials: Data will be available upon request from the corresponding author

Conflict of Interest: The authors have no conflicting interest in the current study

Ethical consideration: Informed consent from the participants was obtained and they were assured of the confidentiality of the information provided before participating in the study

Authors' contributions: Sunday Itasanmi: Conceived, collected data, analyse and prepared the manuscript. Helen Andong: collected and analyse data, review the manscript. Omobola Adelore: Supervised, review and edited the manuscript

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Appendix
Health Literacy

S/N	Items	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I have the skills to read and understand written health information including medication labels				
2	I know how to fill out medical forms correctly				
3	I do observe all instructions given by healthcare providers				
4	I know how to get information about health personally				
5	I can easily find information about my health challenges				
6	I do get health information from different sources				
7	I can say that I have updated health information that can help deal with my health issues				
8	It's very easy to compare health information from different sources				
9	I do verify whether particular new health information is correct or not				
10	I do discuss health problems with healthcare providers in a manner they can understand properly				
11	I do discuss health concerns with doctors and other healthcare providers				
12	I do engage healthcare providers in discussions to get needed health information				
13	It is easy to judge which everyday behaviour is related to my health				
14	I know how to find out about activities that can help enhance mental well-being				
15	I know how to protect myself from illness based on information I get from different sources such as radio, television, and newspaper				
16	I understand health warnings on behaviour such as smoking, low physical activities and excessive drinking				
17	I know how to find information on better management of stress and depression				

Contraceptive Knowledge

S/N	Items	Never heard of it	Heard but don't know it	know a little about it	Know it very well
1	Natural methods				
2	Miscellaneous methods				
3	Post-coital pills				
4	Sterilization				
5	Oral hormonal pills				

6	Intrauterine devices				
7	Condoms				
8	Spermicidal jellies				
9	Diaphragm				
10	Contraceptive Injectable				

Attitude towards Contraception

S/N	Items	Strongly Disagree	Disagree	Agree	Strongly Agree
1	Using contraceptives is very good				
2	Contraceptives increase self-protection during sex				
3	Contraceptives are necessary to prevent unwanted pregnancy				
4	Every adult should use contraceptives				
5	I will not have sex without contraceptives				
6	Contraceptives can be used to prevent sexually transmitted infections				
7	Using contraceptives shows care for the partner				
8	Contraceptives are easy to obtain				
9	Contraceptive makes intercourse pleasurable				
10	I feel relaxed if the contraceptive method is used				
11	I prefer to use contraceptives during intercourse				
12	It is no trouble to use contraceptives				
13	Using contraceptives makes a relationship strong				
14	Sex becomes fun if a contraceptive is used				
15	I do talk to and encourage people about contraceptive use				
16	Contraceptive use makes sex and family life well-planned				

Contraceptive Use

S/N	Items	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I use contraceptives regularly				
2	I have used contraceptives at one time or the other in my life so far				
3	I will use contraceptives even if my partner does not want to				
4	I will use a different contraceptive if side effects occur				
5	In the future, I will use a contraceptive				