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Association of Sexual and Reproductive Health Literacy With Related Service Utilization Among Young People Aged 15–24 Years in Southwest Nigeria: A Cross-Sectional Data Analysis

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Abstract

Sexual and reproductive health literacy may influence whether young people recognize care needs, identify appropriate services, and seek timely support. This secondary cross-sectional analysis assessed the association between sexual and reproductive health literacy and related service utilization among young people aged 15–24 years in Southwest Nigeria. An anonymized dataset containing 1,096 participants was analyzed using descriptive statistics, chi-square tests, independent-samples t-tests, reliability analysis, and binary logistic regression. Sexual and reproductive health literacy was assessed across nine domains and summarized using a standardized 0–100 index, while facility-based service utilization was treated as the primary outcome. Mean age was 19.02 ± 2.55 years, 56.5% were female, and 69.4% were in school. Only 12.9% had utilized facility-based sexual and reproductive health services. The mean literacy score was 56.56 ± 16.76, with excellent internal consistency (Cronbach's alpha = 0.951). Utilization increased from 9.7% in the low-literacy group to 18.6% in the high-literacy group. Each 10-point increase in literacy was associated with higher adjusted odds of utilization (adjusted odds ratio = 1.39, 95% confidence interval: 1.23–1.57). Previous sexual intercourse was the strongest predictor. Improving literacy, provider support, confidentiality, navigation skills, and youth-friendly access may strengthen preventive service use among young Nigerians. Findings support integrated interventions linking reliable health information with accessible, respectful, confidential clinical services.

Keywords: Adolescents, Health literacy, Nigeria, Sexual and reproductive health, Service utilization

1. Introduction

Adolescents' and young people's sexual and reproductive health is part of their general health and well-being, as their decisions during this period can impact their future health, their education, their exposure to sexually transmitted infections, and their fertility. In sub-Saharan Africa, young people aged 15-24 make up a significant proportion of the population, but still have limited access to sub-optimal, inaccurate information, preventive services, and timely care. Lack of access to services is an equity issue, as these disparities may be disproportionately found among the poor, out-of-school, geographically remote, or socially disadvantaged population (Melesse et al., 2020).

Enabling adolescents to access confidential sexual and reproductive health services is a prerequisite for the realization of UHC. Legal, policy, and service barriers to accessing sexual and reproductive health services by adolescents need to be addressed if UHC is to be realized. Even where services are present, the age of consent, parental consent, limited guidance by providers, and poor implementation of youth-responsive policies can limit services. To ensure confidentiality and autonomy in service delivery, as well as informed decision-making, policy frameworks need to be translated into service-delivery standards (Kangaude et al., 2020).

However, improvements in the sexual and reproductive health of the youth will also need intervention other than within the health sector. The education, community, digital environment, families and public institutions affect access to information and the drive for care. In practice, there is a need for multisectoral strategies aligned to health education, health service provision, financing and accountability (Waiswa, 2020).

Youth-friendly services should be accessible, acceptable, equitable, appropriate and effective. Factors such as cost, distance, waiting time, provider attitudes, provider privacy, cultural norms, and awareness all impact their use. Weak confidentiality and judgmental treatment are deterrents, as young people may avoid facilities when they think they will be disclosing and/or facing moral scrutiny (Ninsiima et al., 2021).

A study in Nigeria shows that service availability doesn't necessarily mean adequate service delivery. Public facilities can provide reproductive health services without staff who are trained to provide the service, youth-friendly spaces, a consistent supply of commodities, or a referral system. These constraints decrease the responsiveness and increase the achievement gap between the formal provision and the actual use of the services (Envuladu et al., 2021).

This sexual and reproductive health literacy could be the reason why some young people seek healthcare, and others don't. With it comes the knowledge, understanding, appraisal, communication and use of information relating to contraception, sexually transmitted infections, pregnancy, consent and preventive services. Literacy has been demonstrated to be a multi-dimensional ability and not just a simple fact, as evidenced in West Africa where literacy needs of adolescents have been identified (Nkrumah et al., 2024).

Utilization is affected by service preferences. Some characteristics Nigerian adolescents and young adults might value include confidentiality, providers that seem to value them, brief wait times, low cost for services, and convenient location. Though the services are available, they are not well aligned with the priority of the users, and therefore may not be used, as discussed by Arije et al. (2024).

Qualitative evidence from all over Sub-Saharan Africa indicates young people value nonjudgmental communication, privacy, reliable information, and services that recognize the diversity of situations. Lack of trust, embarrassment, social surveillance, and fear can deter the use of facilities (Uka et al., 2024).

Barriers are also seen in adolescent utilization of maternal health services, where financial problems, late detection of pregnancy, low autonomy, and unfriendliness of health providers are important factors that account for low or delayed utilization. Thus, knowing something and needing it is not enough to ensure its uptake in services (Tolossa et al., 2024).

This is a methodological problem that still needs to be addressed. Adolescent sexual health literacy instruments have been reviewed and found to have differences in the domains,

psychometric properties, and conceptual coverage. Assessment should measure functional, communicative, critical, and navigational components and should not measure unsupported total scores that mask differences between literacy components (Muehlmann et al., 2025).
Adolescent needs are not well addressed in facility models, which are often used throughout the region. Poorly designed services, poor provider training, fragmented services, limited hours of operation, and reduced acceptability of services all make literacy interventions less continuous and acceptable, emphasizing the importance of improving the literacy services system (Sanyang et al., 2025).
Further evidence from Nigeria, in recent times, suggests that there are disparities in the availability of and access to SRH services in primary health care facilities, meaning there are still gaps in implementation. A comparison of the association of literacy with actual use can reveal modifiable factors that can be considered in youth-responsive programming (Ozughalu et al., 2025). This study aimed to determine the relationship between sexual and reproductive health literacy and utilisation of sexual and reproductive health services among the youth in the Southwest region of Nigeria, aged 15-24 years.

Objectives of the study:
1. To assess sexual and reproductive health literacy among young people aged 15–24 years.
2. To determine the prevalence of sexual and reproductive health service utilization.
3. To examine the association between health literacy and related service utilization.

2. Methodology

2.1 Study Design and Data Source

A secondary cross-sectional analysis was done with the publicly available Dataset for Sexual and Reproductive Health Literacy and Service Utilization Among Young People in Southwest Nigeria (Olajubu, 2024). The anonymous SPSS dataset comprised 1,096 respondents and 75 variables on sociodemographic characteristics, schooling status, and ownership of a smartphone, sexual history, sexual and reproductive health literacy, and utilization of services.

2.2 Study Population and Eligibility

Participants in this study were young persons aged 15 – 24 years in the original Southwest Nigeria study site who were both in-school and out-of-school. The records were included if age, literacy data, and the main service-utilization outcome were available, and excluded if they were a duplicate record, if the age was outside of the specified range, or if there was insufficient data. For descriptive analysis, all 1,096 participants were included; for multivariable analysis, 1095 participants were included as the data on one participant were missing for some of the covariates.

2.3 Study Variables

The main outcome was sexual and reproductive health service utilization as measured at the facility; coded as 0 if the participants had no prior use of sexual and reproductive health services, and 1 if they had used sexual and reproductive health services previously. The overall exposure was focused on sexual and reproductive health literacy, as measured by 40 items of the Health Literacy Questionnaire that were labeled into nine domains: provider support, sufficient information, active health management, social support, information appraisal, engagement with providers, healthcare navigation, information seeking, and information understanding. An overall literacy score (0–100) was developed, with higher scores representing higher literacy. Four fields were not shown because they were repeated items from previous fields. The covariates used were age, gender, schooling, relationship status, smartphone ownership, and prior sexual intercourse; the latter were analysed descriptively in the context of the study.

2.4 Data Cleaning and Reliability

Duplicate observations, missing values, invalid codes, and values outside of expected ranges within the dataset were checked. Ages at sexual debut values coded as 999 were considered missing. Service-specific variables were limited to a descriptive analysis due to some having counts higher than the number of facility users, which could indicate multiple-response coding or questionnaire routing. For each domain of literacy and for the 40-item standardized literacy index, the internal consistency of scores was computed using Cronbach's alpha, with values of 0.70 or higher indicating acceptable internal consistency.

2.5 Statistical Analysis

Means and standard deviations were used to summarize continuous variables, and frequencies and percentages were used to summarize categorical variables. Standardized literacy score median and interquartile range were also computed, and service-utilization prevalence was presented with 95% confidence intervals. Association of categorical variables with service utilization was evaluated using chi-square or Fisher's exact tests, and the association of literacy scores with user/non-user status was evaluated using an independent-samples t-test or nonparametric alternatives when appropriate. The association between the literacy score and service use was evaluated using binary logistic regression; the standardized literacy score was entered in the model per 10-point increase, and age, gender, schooling status, relationship status, ownership of a smartphone, and prior sexual intercourse were controlled for. Individual models were fitted for each of the domains of literacy. Results presented as ORs with 95% CIs. Model discrimination was evaluated by area under the receiver operating characteristic curve, model fit was assessed by the likelihood-ratio test and McFadden's pseudo R2, and a sensitivity analysis compared the primary score (40 items) with a score based on all 44 items. A p-value < 0.05 was used as a statistical cutoff on both sides, and all analyses were conducted in Python.

3. Results

3.1 Participant Characteristics

Overall, an analysis of 1,096 young people aged 15-24 years was conducted. The mean age was 19.02 ± 2.55 years. There were 619 female participants (56.5%) and 476 males (43.4%), and one participant identified with another gender identity (0.1%). Most participants were currently in school (n = 761, 69.4%), and 335 (30.6%) were out of school. 995 participants (90.8%) reported having a Smartphone. In total, 35.2% (386) reported previous sexual intercourse and 64.8% (710) had not had any sexual intercourse before. The details of the participants are given in Table 1.

Table 1. Sociodemographic and behavioural characteristics of participants (N = 1,096)

Variable	n	% or mean ± SD
Age, years	1,096	19.02 ± 2.55
Female	619	56.5
Male	476	43.4
Other gender	1	0.1
In school	761	69.4
Out of school	335	30.6

Smartphone ownership	995	90.8
No smartphone ownership	101	9.2
Previous sexual intercourse	386	35.2
No previous sexual intercourse	710	64.8

3.2 Sexual and Reproductive Health Literacy

The standardized sexual and reproductive health literacy score ranged from 0 to 100, and the mean score was 56.56 ± 16.76. The median score was 57.92, and the interquartile range was 46.61-67.71. The social support domain received the highest mean score (2.82 ± 0.59), followed by the active health management domain (2.80 ± 0.58) out of the four domains scored on a four-point scale. The highest mean score at 3.55 ± 0.93 was for understanding of health information, with the lowest being for interviewing skills at 2.66 ± 0.96. Understanding of health information was the highest scoring domain with a mean (SD) of 3.55 ± 0.93, whereas interviewing skills was the lowest with a mean (SD) of 2.66 ± 0.96. Cronbach's alpha values ranged between 0.757 and 0.888 for the nine domains of literacy, with the results showing acceptable to excellent internal consistency. The internal consistency of the standardized 40-item literacy index was good, with Cronbach's alpha of 0.951. Table 2 shows literacy scores and reliability coefficients. The standardized scale scores of the sexual and reproductive health literacy domain are shown in Figure 1.

Table 2. Sexual and reproductive health literacy scores and internal consistency

Literacy measure	**Mean**	**SD**	**Cronbach's alpha**
Standardized literacy index, 0–100	56.56	16.76	0.951
Provider support	2.50	0.66	0.777
Sufficient information	2.68	0.63	0.757
Active health management	2.80	0.58	0.770
Social support	2.82	0.59	0.760
Appraisal of information	2.60	0.60	0.763
Active engagement with providers	3.13	0.99	0.874
Navigating healthcare	3.19	0.96	0.888
Finding information	3.22	0.98	0.827
Understanding information	3.55	0.93	0.885

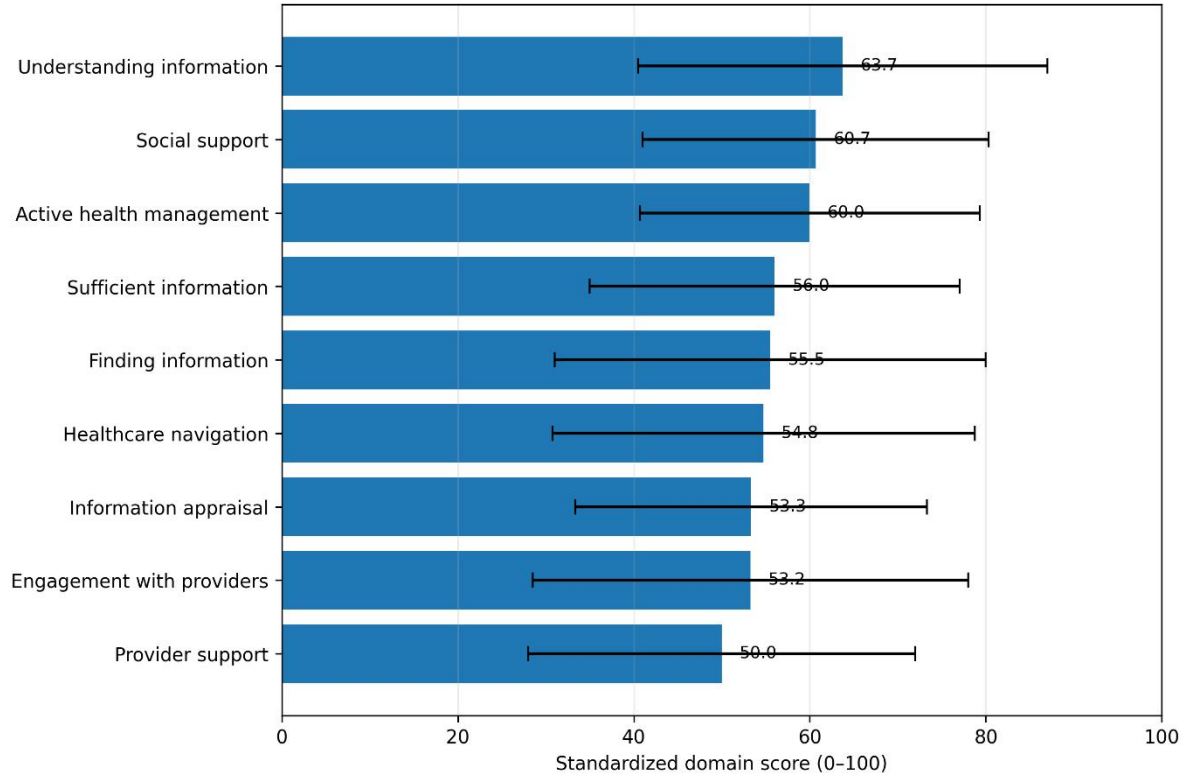

Figure 1. Standardized Sexual and Reproductive Health Literacy Domain Scores Among Young People Aged 15–24 Years

3.3 Sexual and Reproductive Health Service Utilization

Overall, 12.9% (95% CI: 11.0%–15.0%) of the 141 participants reported using a health facility to get sexual and reproductive health care. 87.1% of the 955 who were not using facility-based sexual and reproductive health services were not using them. The most common service-related response was sexual and reproductive health information or counselling (n = 504, 46.0%). This was followed by voluntary counselling and testing (n = 202, 18.4%), gender based violence services (n = 161, 14.7%), services for sexually transmitted infections (STIs) (n = 160, 14.6%), and contraceptive services (n = 143, 13.0%). There were multiple possible responses that could have been given to the question. The results of the service utilization are provided in Table 3. Figure 2 shows the percentage of service use for each of the three literacy levels, as well as the percentage of children who are not using any service. Figure 2 presents the percentage of children using services for each of the three literacy levels, as well as for children who are not using services.

Table 3. Overall and service-specific sexual and reproductive health service utilization

Service	n	%
Facility-based SRH service utilization	141	12.9
No facility-based SRH service utilization	955	87.1
SRH information or counselling	504	46.0
Voluntary counselling and testing	202	18.4
Gender-based violence services	161	14.7

Sexually transmitted infection services	160	14.6
Contraceptive services	143	13.0
Pregnancy testing	126	11.5
Sexual dysfunction services	112	10.2
Gynaecological examination	77	7.0
Maternal and child health care	72	6.6
Cervical cancer screening	65	5.9
Other reproductive cancer screening	49	4.5
Pregnancy care	48	4.4
Post-abortion care	39	3.6
Other services	6	0.5

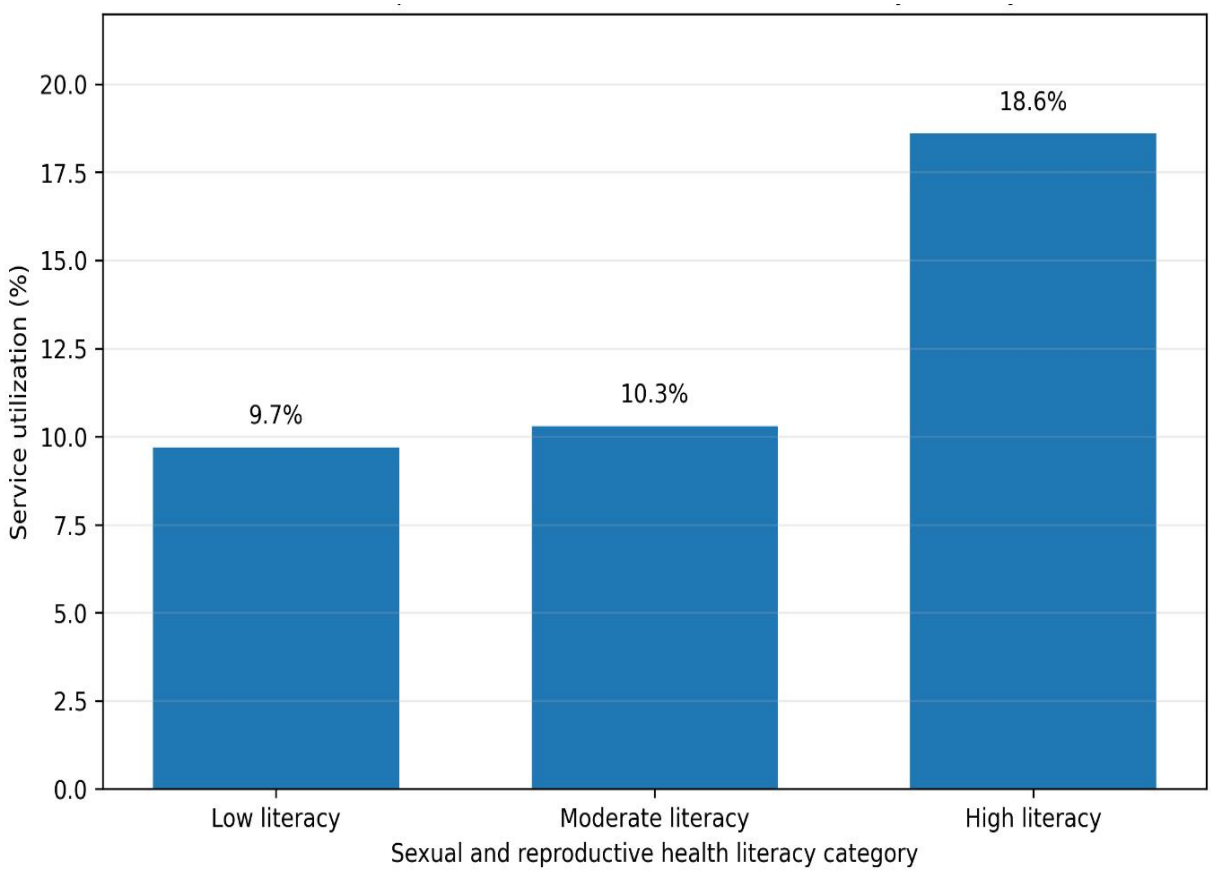

Figure 2. Sexual and Reproductive Health Service Utilization Across Literacy Levels

3.4 Bivariate Associations With Service Utilization

Gender, marital status, sexual experience, and literacy category had significant differences in terms of service utilization. Of the female respondents, 14.7% reported using services, and 10.5% of males reported being users ($p = 0.049$). These usage prevalence figures were 15.8% for out-of-school participants and 11.6% for in-school participants, but not significantly different ($p = 0.066$). The prevalence of utilization was higher among the participants who were in a relationship than for those who were not in a relationship (19.5% versus 9.4%, $p < 0.001$). Also, the utilization was significantly higher for participants who had ever had sexual intercourse compared with those who had not (26.9% vs. 5.2%, respectively, $p < 0.001$). The use of services by children improved in all categories of literacy. The prevalence was 9.7% in the low-literacy group, 10.3% in the moderate-literacy group, and 18.6% in the high-literacy group ($p< 0.001$). The results of the bivariate associations are presented in Table 4.

Table 4. Bivariate associations between participant characteristics and service utilization

Variable	Utilization, %	p-value
Female	14.7	0.049
Male	10.5	0.049
In school	11.6	0.066
Out of school	15.8	0.066
In a relationship	19.5	<0.001
Not in a relationship	9.4	<0.001
Previous sexual intercourse	26.9	<0.001
No previous sexual intercourse	5.2	<0.001
Low literacy	9.7	<0.001
Moderate literacy	10.3	<0.001
High literacy	18.6	<0.001

3.5 Literacy Scores According to Service-Utilization Status

The sex and reproductive health services users were significantly more likely to have a higher standardized literacy score than the non-users (62.19 vs. 55.73, $p < 0.001$). There were also significant differences in service users' scores on provider support, enough information, active health management, information appraisal, active engagement with providers, navigating healthcare, seeking information, and understanding health information. There was no statistically significant difference between the mean social-support score of the service users and non-users in the unadjusted comparison; the score was 2.90 for the service users and 2.81 for the non-users ($p = 0.117$). The results on sexual and reproductive health literacy scores by service utilization are presented in Table 5.

Table 5. Sexual and reproductive health literacy scores according to service-utilization status

Literacy measure	Non-users, mean	Users, mean	p-value
Standardized literacy index	55.73	62.19	<0.001
Provider support	2.46	2.75	<0.001
Sufficient information	2.66	2.81	0.005
Active health management	2.78	2.92	0.011
Social support	2.81	2.90	0.117
Appraisal of information	2.57	2.81	<0.001
Active engagement with providers	3.08	3.50	<0.001
Navigating healthcare	3.16	3.44	<0.001
Finding information	3.18	3.49	<0.001
Understanding information	3.52	3.72	0.012

3.6 Multivariable Analysis of Factors Associated With Service Utilization

A multivariable logistic regression model was used with 1095 study subjects who had complete data. When the effects of age, gender, schooling status, marital status, owning a smartphone, and prior sexual intercourse were accounted for, sexual and reproductive health literacy remained significantly associated with utilization of services. The adjusted odds of service utilization increased by 39% for every 10-point increase in the standardized literacy score (adjusted odds ratio [aOR] = 1.39, 95% CI: 1.23–1.57, $p < 0.001$). Each additional year of age was associated with higher odds of utilization (aOR = 1.12, 95% CI: 1.03–1.23, $p = 0.009$). There were lower adjusted odds of utilization for male participants than female participants (aOR = 0.66, 95% CI: 0.44–1.00, $p = 0.049$). The most significant independent predictor was previous sexual intercourse, where those who had not had sexual intercourse had over seven times less odds of service utilisation (aOR = 7.22; 95% CI: 4.35–11.96, $p < 0.001$). The association between out-of-school status and utilization, and between relationship status and utilization, were not independent. The adjusted odds of utilization were lower for those who owned a smartphone (aOR = 0.42, 95% CI: 0.21–0.86, $p = 0.017$). The discrimination of the model was good, with an area under the receiver operating characteristic curve of 0.801. The likelihood-ratio test was statistically significant ($p < 0.001$), and the pseudo R^2 value of McFadden was found to be 0.175. The adjusted associations between individual literacy domains and sexual and reproductive health service utilization are shown in Figure 3.

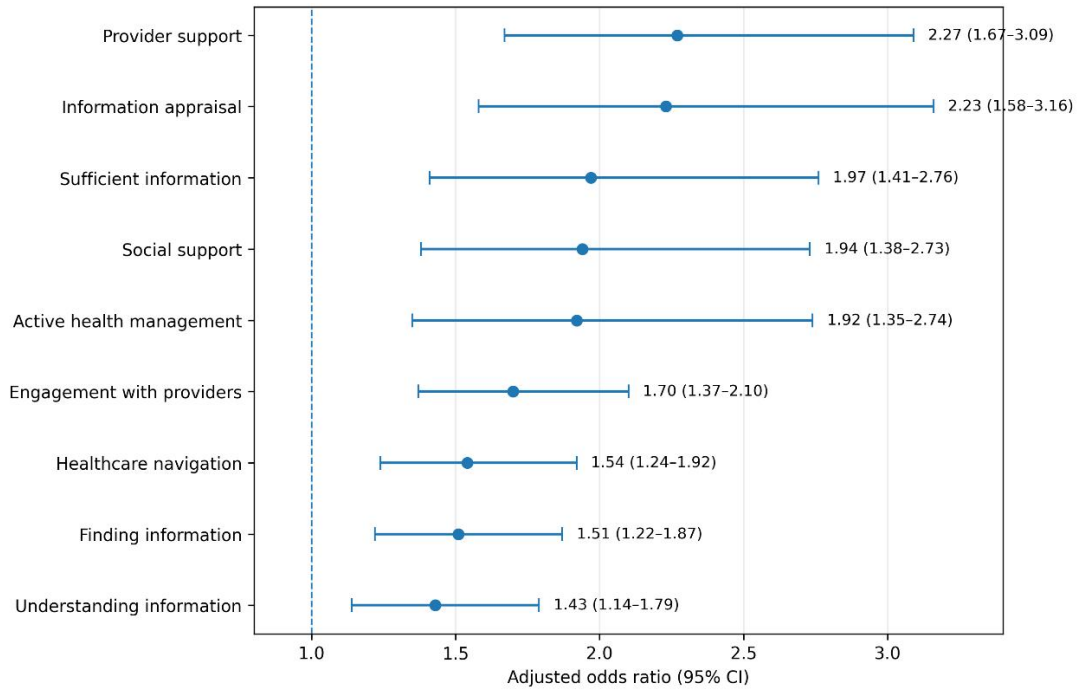

Figure 3. Adjusted Associations Between Sexual and Reproductive Health Literacy Domains and Service Utilization

4. Discussion

This study revealed a low level of use of sexual and reproductive health services among the youth (aged 15-24 years) in Southwest Nigeria. Fewer than half (12.9%) of the participants said that they had used a health facility for sexual and reproductive health care activities before. There was a significant increase in the proportion using services from low to high literacy (9.7% to 18.6%), and the odds of service use were higher with each 10-point increase in the standardized literacy score. These results suggest that literacy can be used to gain access to care; however, there was a low uptake of this.

This low utilisation is reflective of evidence showing that youth in Nigeria have structural and information barriers to accessing sexual and reproductive health services. The lack of awareness, confidentiality, fear of judgement, inconvenience, or uncertainty of service points can also prevent utilisation even if there is service available (Odo et al., 2021). The results confirm the differentiation between ‘available’ and ‘available and accessible'.

The utilization prevalence was slightly higher amongst the female participants than the male, and there was a nonsignificant tendency for participants who were out-of-school to use more. There has also been diverse evidence of inequalities by demographic and social groups in Nigeria, with age, sex, place, education and knowledge about reproductive health affecting the utilization of facilities (Agu et al., 2021). Programs need to take into consideration gender and educational background.

Increased odds were found with the strongest independent predictor, previous sexual intercourse, with over seven times the odds among sexually experienced participants. This reflects a trend of many youth looking to services in response to sexual activity, instead of seeking prevention services before becoming exposed to pregnancy or STIs. Adolescents' use of the services available to them doesn't tend to follow from their knowledge of services if they feel they are at low risk (Ugwu et al., 2022). Preventive education needs to start before the first sexual experience and provide information on how to access confidential services.

In each model adjusted for other literacy domains, the utilization of each was significantly correlated with the other literacy domains. The most significant associations were with provider support, information appraisal, and adequate information. Literacy goes beyond just the ability to read fact-based information and involves the ability to assess information, interact with providers, recognize trusted providers, and be able to maneuver health systems. These capabilities can be undermined by stigma, poor confidentiality, negative provider

attitudes, and fear of disclosure, which may disempower and dissuade people from seeking formal services (Folayan et al., 2022).

These results also shed light on the need for a coordinated delivery of services. Individuals and groups in the school, family, community, primary care, youth and government sectors have an impact on literacy and access. A lack of clarity regarding stakeholders' responsibilities can result in a disjointed message, low referral rates and lack of coverage (Agu et al., 2022). Health education must be integrated with easily accessible services, prompt referral systems and privacy protection, through a multisectoral approach.

This is because, despite an increase in literacy, there was low utilization, which could be attributed to social norms. For both men and women, there are norms and expectations of premarital sexuality, gender roles, family reputation, and adult control that limit autonomy and decrease reproductive health service uptake (Taiwo et al., 2023). To discuss the social costs of care seeking, confidentiality protections are required, as is community engagement.

There is another potential modifiable factor—provider behavior. Capacity-building interventions have been found to have a positive impact on healthcare workers' attitudes towards adolescent SRH and increased receptivity to delivering nonjudgmental and youth-sensitive care (Agu et al., 2023). Confidential training areas, availability of reliable commodities, flexibility in working hours, and confidentiality protocols should be present.

Proper education interventions can also be beneficial in increasing awareness of prevention. Intentioned SRH education among adolescents has led to an upsurge in condom awareness and dual protection awareness among the adolescents in Nigeria (Agu et al., 2024). Literacy programs ought to include factual information, along with information about being comfortable with communication and how to navigate the system and refer them.

The large sample size and the use of both in-school and out-of-school participants, as well as a multidimensional assessment of literacy and a control for important confounding variables, added strength to the study. The cross-sectional study design did not allow for causal inferences, and reverse relationships were not ruled out, as service contact could be found to enhance literacy. There was a risk of recall and social-desirability bias with self-reported utilization, and a limitation to generalizability across regions with recruitment from a single state. This applies to young people who are not receiving services, and who might not have access to trustworthy information and confidential services. The results validate integrated service provision and support for literacy to enhance confidential, preventive, and youth-focused SRH services.

5. Conclusion

Although there was some evidence of health literacy, young people aged 15–24 in Southwest Nigeria had low uptake of sexual and reproductive health services. Higher sexual and reproductive health literacy was independently associated with higher odds of using services, and this association persisted after adjusting for age, gender, schooling status, relationship status, having a smartphone, and prior sexual intercourse. All of the following literacy dimensions were relevant to provider support, information appraisal, access to adequate information, active engagement, healthcare navigation, and understanding of health information. Previous sexual intercourse was the most powerful predictor of utilization, suggesting that seeking care may be primarily in response to sexual health risk exposure, rather than preventive action. The results lend support to the integration of literacy development and confidential, affordable, youth-friendly services. Interventions should start before first use of sex and build adolescents' skills in recognizing reliable information and communicating with health care providers. There is also a need for providers to be better trained, more private consultation rooms, engagement with the community, and more robust referral networks. The interpretations that can be drawn are only to be taken as tentative in Nigeria because the study was cross-sectional and data were self-reported from a single state.

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