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AWARENESS AND ATTITUDE TOWARDS PREMARITAL GENOTYPE SCREENING AMONG YOUTHS IN A NIGERIAN LGA

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ABSTRACT

Background: Premarital genotype screening is conducted before marriage as an effective tool in providing couples with crucial information about their genetic makeup which helps assess the probability of transmitting genetic conditions to their offspring.

Objective: The study aims to assess the awareness and attitude towards premarital genotype screening among youth in Moro LGA, Kwara state.

Methods: A descriptive cross-sectional study design was utilized with data collected from 413 respondents through structured interviews and survey questionnaires using a multistage sampling approach. The data were analyzed using basic statistical techniques, including frequencies, percentages and chi-square tests, with a significance threshold set at $p<0.05$.

Result: The study revealed that most respondents were young adults (mean age 29.6 ± 6.8 years), predominantly female (56.4%) and largely single (58.8%). Awareness of premarital genotype screening was moderate (59.6%) but only 41.6% had undergone screening. Despite strong positive perceptions (75.1%) and family support (76.5%), barriers such as lack of awareness (50.1%), perceived good health and cost hinders uptake. Peer influence was low while family influence was higher and gaps remain between awareness, attitude and actual screening practice. Education, income and age were significantly associated ($p < 0.05$) while marital status and occupation were not significantly associated with awareness and practice of premarital screening.

Recommendations: Premarital genotype screening should be made mandatory and affordable with improved access through equipped rural health centers. Public awareness must be enhanced through sustained education campaigns to address misconceptions. Genetic counseling should be culturally appropriate and widely available and should be integrated into routine healthcare and outreach programs expanded to communities.

Keywords: Premarital Screening, Sickle cell anemia, Youth, Genetic disorder

BACKGROUND INFORMATION

Genetic screening is a process by which individuals or couples undergo tests to assess their genetic compatibility, particularly in relation to hereditary diseases. Genetic screening has gained widespread importance globally as it serves as an essential preventative measure for genetic disorders that may be passed from one generation to the next (CDC, 2023). Mostly, genetic screening is conducted before marriage as an effective tool in providing couples with crucial information about their genetic makeup which helps assess the probability of transmitting genetic conditions to their offspring and empower them to make informed decisions regarding family planning (Al Eissa et al., 2024). It also provides them with knowledge about genetic risks associated with reproduction. In recent times, premarital screening aids decisions of couples to opt in for In vitro fertilization (IVF) involving genetic testing of embryos, adoption or other reproductive technologies that could help avoid passing on serious genetic disorders (Christianti & Legiran, 2025). In regions where genetic disorders like sickle cell anemia, hemophilia and thalassemia are prevalent, premarital genotype screening becomes even more essential. Sickle cell anemia is a hereditary blood disorder that affects a significant proportion of the population. Individuals with the sickle cell trait (AS) who marry others with the same trait face a 25% chance of having a child with sickle cell disease (SS) (NHLBI, 2022). The disease is inherited when a person receives two copies of the sickle cell gene, one from each parent. It is most prevalent among individuals of African, Mediterranean, Middle Eastern, and Indian ancestry (Elendu et al., 2023). However, premarital genotype screening has gained prominence in recent years as part of national public health campaigns designed to reduce the burden of genetic disorders (Adesina et al., 2022). Despite this, many young people particularly in rural and semi-urban areas remain largely unaware of its significance. Several factors contribute to this lack of awareness including limited access to healthcare services, insufficient public health education and the persistence of cultural misconceptions about genetic screening (Niyibizzi et al., 2023). These barriers hinder the engagement of youth in the screening process which leads to higher risks of genetic disorders in future generations. Many genetic diseases, such as sickle cell anemia (SCA) significantly impacts individuals and families socially, emotionally and financially. Individuals with SCA often face stigma, discrimination and difficulties in employment while relationships may be strained due to the constant care required (Essien et al., 2023). Also, the chronic pain, frequent hospitalizations and uncertainty about the future contribute to high levels of stress, anxiety and depression and the costs of ongoing medical treatment, hospital visits and lost productivity create substantial burdens especially in low-income settings (Babapour et al., 2022). Early screening and prevention efforts help reduce the burden of these conditions by preventing their transmission especially in countries with high prevalence rates of certain genetic diseases.

Neglecting premarital screening often leads to serious health and emotional consequences. Couples may unknowingly pass on genetic disorders which increases the risk of birth defects or chronic diseases in offspring. Around 5% of the global population carries genetic traits for hemoglobin disorders, primarily sickle cell disease and thalassemia (WHO AFRO, 2023). These disorders are inherited blood conditions resulting from the transmission of mutated hemoglobin genes from both usually healthy parents. Each year, more than 300,000 infants are born with severe hemoglobin disorders and a small number of congenital disorders result from genetic abnormalities such as chromosomal disorders (e.g., Down syndrome or trisomy 21) or single gene mutations (e.g., cystic fibrosis)(WHO, 2023). The burden of sickle cell disease has resulted in considerable public health challenges including high morbidity and mortality rates among children and adults affected by the condition. Annually, approximately 240,000 newborns worldwide die within the first 28 days of life due to congenital disorders passed from their parents and also contributes to another 170,000 deaths in children aged 1 month to 5 years.(WHO AFRO, 2023). However, many young people are either uninformed or indifferent to the benefits of premarital genotype screening. Despite the availability of genetic screening services to prevent transmission of these conditions, many youths are not sufficiently aware of the importance of premarital genotype screening especially in rural areas. Lack of awareness about premarital screening results to preventable genetic disorders such as sickle cell anemia being passed on to future generations. In some cases, cultural beliefs and misinformation further hinder the uptake of screening which makes it a neglected aspect of healthcare planning among the youths (Oluwole et al., 2022). Moreover, the attitudes of the youth towards premarital genotype screening are often shaped by several factors including family influence, educational background and local health campaigns which requires optimum improvement.

RESEARCH METHODOLOGY

Study Area Description

Moro Local Government Area in Kwara State, North-central geopolitical zone of Nigeria. Bode Sa'adu is the headquarters of the Moro LGA. Other towns and villages that make up Moro LGA include Abati/Alara, Arobadi, Babadudu, Ejidongari, Jebba, Lanwa, Logun/Jehunkunmu, Malete/Gbegudu, Megida, Okemi Okutala, Oloru, Elelmere, Asomu, Pakunmo, Shao, Womi/Ayaki with Latitude of 8°43'0"N and longitude of 4°17'59"E. The current estimated population of Moro LGA is put at 213,448 inhabitants with the majority of the area's dwellers being members of the Igbomina sub-group of the Yoruba ethnic affiliation.

Advocacy/Community Entry

Ethical clearance and approval for the study was obtained and submitted to relevant authorities including local government officials, community leaders and youth organizations in Moro LGA, Kwara state. Advocacy efforts were undertaken to garner support and cooperation from key stakeholders to ensure smooth data collection processes and adherence to ethical guidelines.

Study Design

A cross-sectional study design was employed to assess the awareness and attitude towards premarital genotypes screening among youth in selected communities in Moro LGA, Kwara State. Data collection was carried out through structured interviews and survey questionnaires to be administered to participants within the study area.

Study Population

The study population comprises youths aged 18 to 35 years residing in selected communities within Moro Local Government Area (LGA) of Kwara State, Nigeria.

Inclusion Criteria

The study included youths aged 18–35 years who are permanent residents of selected communities in Moro LGA, Kwara State. Eligible participants must be unmarried or recently married (within the past two years) and willing to provide informed consent.

Exclusion Criteria

The study excluded individuals below 18 or above 35 years of age, non-residents or temporary visitors to Moro LGA and those who are unwilling to give informed consent. Additionally, youths who are mentally or physically unfit to participate in the interview or questionnaire process will also be excluded.

Sample Size Determination

The study's sample size was determined using fishers' formula:

$n=z^2pq/d^2$

Where:

n = desired sample size

z = standard normal deviate (1.96 at 95% confidence level)

p = proportion of the population less than 10000

q = 1 – p

d = margin of error (typically set at 0.05)

$n=1.96^2 \times 0.5 \times 0.5/0.05^2$

$=3.8416 \times 0.25/0.0025$

$=0.9604/0.0025$

$=384.16$

To account for non-response, 10% of the calculated sample size was added.

Hence, the final sample size was approximately 422.

Sampling Technique

This study employed a multistage sampling technique to ensure representative selection of youths from Moro Local Government Area's diverse communities.

Stage 1: Selection of Communities

From the list of all communities in Moro LGA, a purposive or simple random sampling method was used to select several key communities that represent both rural and semi-urban settings.

Stage 2: Selection of Households

Within each selected community, systematic random sampling was used to select households. A sampling interval was determined based on the total number of households and the required sample size per community.

Stage 3: Selection of Respondents

In each selected household, eligible youths aged 15–35 years were selected randomly. Simple random selection was applied to select eligible respondents until the desired number is reached.

Research Instruments- Validity, Pretesting

Research Instrument

The primary research instrument for this study was a structured questionnaire developed based on relevant literature and research objectives. The questionnaire was in 5 sections to capture responses on each research objective.

Section A: Socio-demographic characteristics of respondents.

Section B: Awareness about premarital screening.

Section C: Attitude towards premarital genotype screening.

Section D: Factors influencing premarital genotype screening.

Section E: Barriers to Premarital Genotype Screening among youths.

Validity

The research instrument underwent face validity assessed through experts review to ensure it appears to measure the intended concept. Content validity was also initiated to evaluate whether the instrument comprehensively covers all relevant aspects of the construct via expert judgment and a content validity index to quantify agreement.

Pretesting

The tool was pre-tested with 10% of the actual sample size within a selected community with related characteristics to the study area to ensure instrument reliability and ascertain validity of the data collection process. Feedback from the pretest was used to refine the questionnaire and ensure its suitability for the main study.

Methods of Data Collection

A semi-structured close-ended questionnaire was designed to collect data on the awareness and attitude towards premarital screening among youths in Moro LGA, Kwara State. The structured questionnaire was administered through face-to-face interviews. The questionnaire was designed to capture quantitative and qualitative information on socio-demographic characteristics and relevant data on the awareness and attitude of youths towards premarital screening.

Measurement of Variables and Data Processing

Survey data collected through the structured questionnaires specially designed for the study encompass demographic information, the level of awareness regarding premarital genotype screening among youths, the attitudes towards premarital genotype screening, factors influencing awareness and attitudes towards premarital genotype screening and the barriers to premarital genotype screening among youths in Moro LGA.

a. Sociodemographic variables include age, gender, education level, marital status, occupation and community of residence recorded as categorical or continuous variables.

b. Awareness about premarital screening was measured with multiple-choice and yes/no items assessing knowledge of genotype screening purpose, availability, procedures and benefits. Awareness scores were computed by summing correct responses, categorized into high, moderate or low awareness based on predetermined cut-offs.

c. Attitude towards premarital genotype screening was assessed via Likert-scale statements (e.g., strongly agree to strongly disagree) evaluating beliefs, feelings and willingness to undergo screening. Scores were totaled and classified as positive, neutral or negative attitudes.

d. Variables such as peer influence, family support and accessibility to screening services were also measured through specific questionnaire items.

The acquired data was then coded, entered into a secure database and subjected to rigorous quality checks to ensure accuracy.

Methods of Data Management and Analysis

Data collected from survey questionnaires were entered into a secure database and analyzed using appropriate statistical software. Statistical Package for Social Sciences (SPSS) was employed for data entry and analysis. Data was presented using frequency distribution tables and charts. Appropriate statistical tests were adopted to examine relationships and associations between variables. Descriptive statistics such as frequency distributions and measures of central tendency used to summarize the data. Additionally, inferential statistics including chi-square tests and logistic regression analysis were adopted.

Consent/Methods of Protection of Human Subjects

Consent was required from all the respondents before inclusion for the interview. Respondents were informed of their right to decline or withdraw from the study at any time without any adverse consequences. Participants' confidentiality was respected and maintained by ensuring that no unauthorized person has access to the information on the data information sheets and that no information can be traced to the subjects.

Ethical Considerations

Ethical approval for the study was obtained from relevant institutional review boards and ethical review committees within the department of public health, Kwara State Ministry of Health. This letter was presented to the necessary stakeholders before carrying out the study to enhance entry gain for the research. The purpose of the research was explained to each respondent and informed consent obtained from them before inclusion into the study. Also, anonymity of the respondents was assured and ensured.

Limitations of the Study

Limitations of the study include potential biases associated with self-reported data. Additionally, the generalizability of findings may be constrained by the specific characteristics of the study population and access to sexual and reproductive health services in Moro LGA which may limit the synonymity of the research findings as to other LGAs' in Kwara state and Nigeria as a whole.

RESULTS

The study explored four specific objectives that guided the results and analytical presentation contained in this section. The study aimed to. A total of 413 questionnaires were administered and were all duly completed and returned, yielding a high response rate of 100%. Univariate analysis was presented using frequency tables, means and standard deviations while bivariate and multivariate relationships were illustrated in tabular format. The first section of the findings presents the demographic characteristics of the respondents and other sections provided context for data view in line with study objectives.

Section A: Socio-demographic Information of Respondents

Table 1: Demographic Profile of Respondents

Variable	Frequency (n=413)	Percent (%)
Age (Years)		
18–22	82	19.9
23–27	94	22.8
28–32	78	18.9
33–37	74	17.9
38–40	85	20.6
Mean Age ± SD	**29.6 ± 6.8 years**	
Education Level		

No Formal Education	30	7.3
Primary	26	6.3
Secondary	232	56.2
Tertiary	124	30.0
Marital Status		
Single	243	58.8
Engaged	30	7.3
Married	134	32.5
Occupation		
Student	166	40.2
Trader	77	18.6
Farmer	19	4.6
Artisan	27	6.5
Others	102	24.7
Income (Monthly)		
< ₦20,000 (Low income)	102	24.7
₦20,000 – ₦49,999	138	33.4
₦50,000 – ₦99,999	92	22.3
₦100,000 – ₦149,999	47	11.4
≥ ₦150,000 (High income)	34	8.2
Mean Income ± SD	**₦59,504 ± ₦49,514**	

The majority of respondents were female (56.4%), while 43.6% were male. Respondents ranged in age from 18 to 40 years with mean 29.6 ± 6.8 years. The largest age group was 23–27 years (22.8%), followed by 38–40 years (20.6%), 18–22 years (19.9%), 28–32 years (18.9%), and 33–37 years (17.9%). This shows a youthful population, with most respondents in their early to mid-adulthood. A significant portion of respondents (56.2%) had completed secondary education, while 30.0% had tertiary education. Those with no formal education made up 7.3%, and 6.3% had only primary education. Most respondents were single (58.8%), followed by married individuals (32.5%), and engaged individuals (7.3%). The dominant occupation was student (40.2%), followed by traders (18.6%), others (24.7%) which may include informal or unclassified jobs, artisans (6.5%) and farmers (4.6%). The distribution of monthly income among respondents indicates a predominantly low-income population. The largest proportion of participants (33.4%) earn between ₦20,000 and ₦49,999, followed closely by 24.7% who earn less than ₦20,000, over half (58.1%) of the respondents earns below ₦50,000 per month. Only 22.3% earn between ₦50,000 and ₦99,999, while a small fraction report higher earnings, 11.4% earn between ₦100,000 and ₦149,999 and just 8.2% earn ₦150,000 or more monthly.

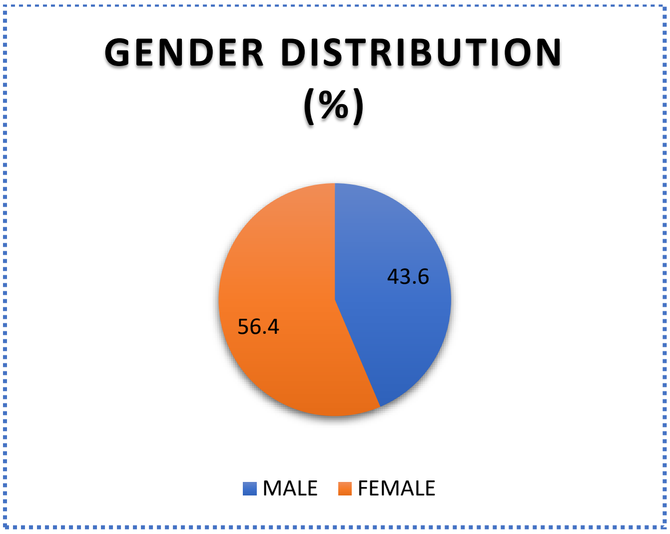

Fig. 1: A Pie Chart showing Gender Distribution of Respondents

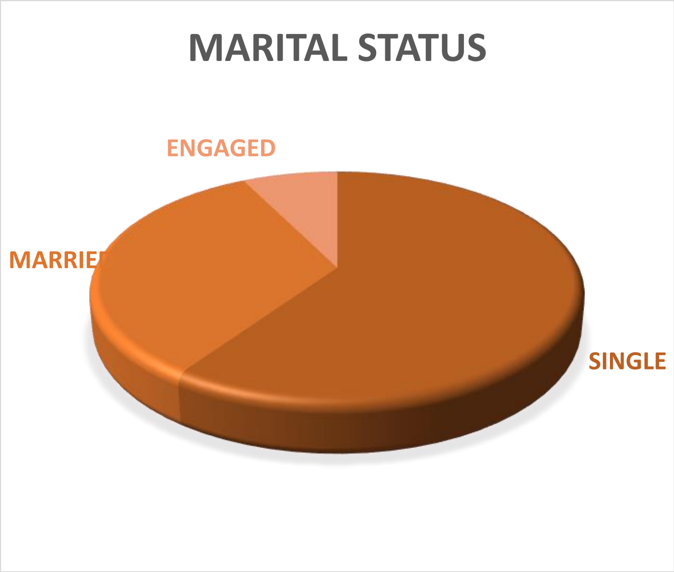

Fig. 2: A Pie Chart showing Marital Status of Respondents

Section B: Awareness of Premarital Genotype Screening

Table 2: Awareness and Perceptions of Premarital Genotype Screening

Variable	Frequency (n = 413)	Percent (%)
Have you heard of premarital genotype screening?		
Yes	246	59.6
No	167	40.4
Purpose of premarital genotype screening (Multiple responses)		
To detect blood group compatibility	189	45.8
To check for genetic disorders like sickle cell disease	127	30.8
To prevent hereditary diseases	72	17.4
To determine fertility status	14	3.4
Don't know	111	26.9
Where can premarital genotype screening be done?		
Hospitals/Health centers	263	63.7
Private clinics	53	12.8
Traditional healers	4	1.0
Don't know	78	18.9
Do you think premarital genotype screening can prevent transmission of genetic diseases?		
Yes	310	75.1
No	103	24.9
Have you ever undergone premarital genotype screening?		
Yes	172	41.6
No	241	58.4
Awareness of Premarital Screening		
High	59.6%	
Low	40.4%	

A majority (59.6%) of the respondents have heard about premarital genotype screening, while 40.4% have not. The most common reason cited was to detect blood group compatibility (45.8%), followed by checking for genetic disorders like sickle cell (30.8%) and preventing hereditary diseases (17.4%). A smaller proportion (3.4%) believed it was to determine fertility status, while 26.9% admitted they did not know its purpose.

Most respondents identified hospitals/health centers (63.7%) as the proper place for screening. Private clinics (12.8%) followed distantly, while very few (1.0%) mentioned traditional healers. Notably, 18.9% didn’t know where screening could be done. A strong majority (75.1%) agreed that premarital genotype screening can help prevent genetic diseases in children. Despite relatively good awareness and positive perceptions, only 41.6% had actually undergone premarital genotype screening indicating a gap between awareness and practice.

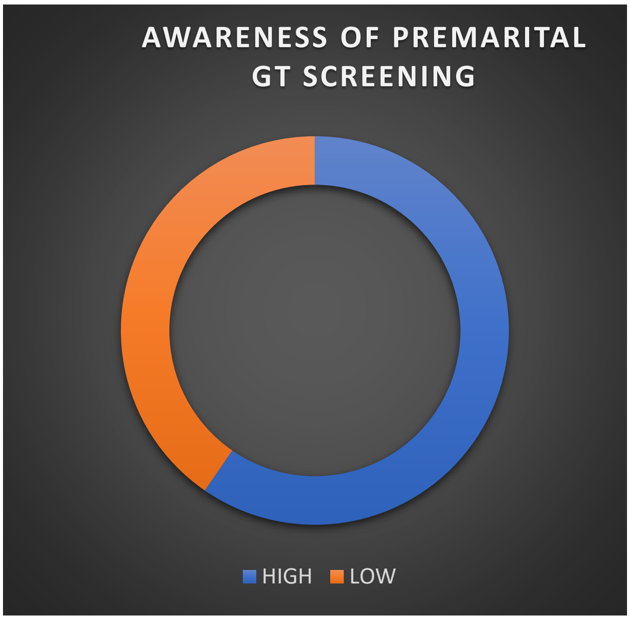

Fig. 3: A Pie Chart showing Level of Awareness of Premarital Genotype Screening among Respondents

Table 3: Respondents’ Perceptions and Attitudes Toward Premarital Genotype Screening

Statements	SA	A	SD	Disagree
Screening is important for all couples before marriage	217 (52.5%)	120 (29.1%)	33 (8.0%)	8 (1.9%)
I am willing to undergo screening before getting married	170 (41.2%)	170 (41.2%)	24 (5.8%)	24 (5.8%)
Screening is unnecessary if partners feel healthy	45 (10.9%)	49 (11.9%)	163 (39.5%)	138 (33.4%)
Screening will affect choice of partner negatively	55 (13.3%)	108 (26.2%)	133 (32.2%)	96 (23.3%)
I trust the results of premarital genotype screening	179 (43.3%)	175 (42.4%)	29 (7.0%)	10 (2.4%)
Screening helps reduce genetic diseases in the community	174 (42.1%)	167 (40.4%)	21 (5.1%)	22 (5.3%)
Screening is too expensive or inaccessible	83 (20.1%)	119 (28.8%)	132 (32.0%)	62 (15.0%)
My family supports the idea of premarital genotype screening	125 (30.3%)	191 (46.2%)	37 (9.0%)	7 (1.7%)

A large majority 52.5% strongly agreed and 29.1% agreed while only 8.0% disagreed and 8 1.9% strongly disagreed that Premarital genotype screening is important for all couples before marriage. A combined 82.4% expressed willingness to undergo premarital genotype screening before getting married with only 5.8% disagreed and 5.8% strongly disagreed. 33.4% strongly disagreed and 39.5% disagreed, showing that 72.9% reject the misconception that health appearance is enough. Only 10.9% strongly agreed and 11.9% agreed that premarital genotype screening is unnecessary if both partners feel healthy. Getting screened before marriage will affect choice of partner negatively recorded a more divided response: 23.3% strongly disagreed and 32.2% disagreed, while 26.2% agreed and 13.3% strongly agreed. Over half (55.5%) rejected the idea of negative impact. High trust was observed: 43.3%) strongly agreed and 42.4% agreed to trust premarital screening. Only 7.0% disagreed and 2.4% strongly disagreed. Similarly, 42.1% strongly agreed and 40.4% agreed, while only 5.1% disagreed and 5.3% strongly disagreed premarital genotype screening helps reduce the transmission of genetic diseases to offspring. 20.1% strongly agreed premarital genotype screening is too expensive or inaccessible, 28.8%) agreed, while 32.0% disagreed and 15.0% strongly disagreed. Perceptions were mixed. Support from family was high, with 125 (30.3%) strongly agreeing and 191 (46.2%) agreeing. Only 37 (9.0%) disagreed and 7 (1.7%) strongly disagreed. This indicates a supportive cultural and social environment.

Table 4: Factors Influencing Awareness and Attitudes towards Premarital Genotype Screening

Variable	**Frequency (n=413)**	**(%)**
Level of Peer influence		
Very high	53	12.8
High	49	11.9
Moderate	119	28.8
Low	89	21.6
No influence	55	13.3
Level of Family influence	73	17.7
Very high	42	10.2
High	97	23.5
Moderate	79	19.1
Low	70	17.0
No influence	73	17.7
Received education/information		
Yes	245	59.3
No	123	29.8
Sources of information		
School	204	83.3
Health workers/Clinics	118	48.2
Television/Radio	28	11.4
Social media/Internet	50	20.4
Community events	13	5.3
Others	13	5.3
Barriers to screening (multiple responses allowed)		
Lack of awareness	207	50.1
No perceived need (healthy)	108	26.2
Cost too high	84	20.3
Fear of stigma/discrimination	64	15.5
Religious/cultural beliefs	21	5.1
Inaccessibility of centers	38	9.2
Lack of trust in results	38	9.2

The level of peer influence on respondents' decision to undergo premarital genotype screening shows that most respondents reported moderate (28.8%) or low (21.6%) influence. Only a small percentage experienced very high

(12.8%) or high (11.9%) influence. In contrast, family influence appears more significant. A combined 51.4% (very high, high and moderate) reported that parents or family members influence their attitude toward screening, with 17.7% citing very high influence. A majority (59.3%) of respondents had received some form of education or information on premarital genotype screening. Among them, schools were the most influential source (83.3%), followed by health workers or clinics (48.2%) and social media/internet (20.4%). Only a few respondents cited traditional media (television/radio at 11.4%) or community events (5.3%). The most significant barrier identified was a lack of awareness (50.1%). A significant portion also indicated no perceived need for screening if they feel healthy (26.2%). Other barriers include Cost of screening (20.3%), Fear of stigma (15.5%), Inaccessibility (9.2%), Lack of trust in results (9.2%) and Religious or cultural beliefs (5.1%).

Table 5: Logistic Regression Analysis of Sociodemographic Variables and Awareness of Premarital Genotype Screening

Variable	**Odds Ratio [95% CI]**	**P > z**
Gender		
Female (ref)	**Reference**	—
Male	0.784 [0.519 – 1.185]	0.247
Age Group		
18–22 (ref)	**Reference**	—
23–27	1.382 [0.767 – 2.491]	0.280
28–32	1.761 [0.921 – 3.367]	0.087
33–37	2.032 [1.030 – 4.008]	0.041 *
38–40	2.155 [1.107 – 4.197]	0.024 *
Education Level		
No Formal Education (ref)	**Reference**	—
Primary	1.598 [0.577 – 4.423]	0.369
Secondary	2.783 [1.197 – 6.470]	0.017 *
Tertiary	4.206 [1.698 – 10.421]	0.002 *
Marital Status		
Single (ref)	**Reference**	—
Engaged	0.812 [0.358 – 1.842]	0.624
Married	1.496 [0.929 – 2.408]	0.098
Occupation		
Student (ref)	**Reference**	—
Trader	1.274 [0.744 – 2.181]	0.379
Farmer	0.884 [0.347 – 2.256]	0.793
Artisan	1.094 [0.483 – 2.477]	0.830
Others	1.006 [0.597 – 1.696]	0.981
Income		
Income (Monthly)		
< ₦20,000 (ref)	**Reference**	—
₦20,000 – ₦49,999	1.341 [0.812–2.216]	0.246
₦50,000 – ₦99,999	1.728 [1.041–2.870]	0.035*
₦100,000 – ₦149,999	1.965 [1.009–3.828]	0.047*
≥ ₦150,000	2.304 [1.147–4.626]	0.018*

The logistic regression analysis revealed that age and educational level were significant predictors of awareness of premarital genotype screening. Respondents aged 33–37 years and 38–40 years were significantly more likely to be aware of premarital genotype screening compared to those aged 18–22 with odds ratios of 2.032 (p = 0.041) and 2.155 (p = 0.024) respectively. Education was a strong determinant: respondents with secondary education had significantly higher odds of awareness (OR = 2.783, p = 0.017), while those with tertiary education were more than four times as likely to be aware (OR = 4.206, p = 0.002) compared to those with no formal education. However, gender, marital status and occupation did not show significant associations. Higher income levels were associated with increased odds of the outcome compared to those earning less than ₦20,000. Those earning ₦50,000–₦99,999 (OR = 1.73, p = 0.035), ₦100,000–₦149,999 (OR = 1.97, p = 0.047) and ≥ ₦150,000 (OR = 2.30, p = 0.018) showed significantly higher odds.

Table 6: Chi-square Test of Association Between Sociodemographic Variables and Awareness and Practices towards Premarital Genotype Screening

Variable	**χ^2**	**Df**	**p-value**	**Significance**
Gender	3.425	1	0.064	Borderline
Age Group	12.538	4	0.014	**Significant**
Education Level	16.891	3	0.001	**Significant**
Marital Status	2.273	2	0.321	Not Significant
Occupation	4.901	4	0.297	Not Significant
Income	10.347	4	0.035	**Significant**

Table 4.6 shows that age group (χ^2 = 12.538, p = 0.014), education level (χ^2 = 16.891, p = 0.001) and income (χ^2 = 10.347, p = 0.035) were significantly associated with awareness and practices toward premarital genotype screening. Gender showed a borderline association (χ^2 = 3.425, p = 0.064), suggesting a possible influence though not statistically significant. Income was significantly associated with awareness and practices toward premarital genotype screening (χ^2 = 10.347, df = 4, p = 0.035). Marital status (χ^2 = 2.273, p = 0.321) and occupation (χ^2 = 4.901, p = 0.297) were not significantly associated. Older individuals, those with higher education and those with higher income are more likely to be aware of and practice premarital genotype screening.

DISCUSSION

The primary aim of this study was to assess the awareness and attitude towards premarital genotype screening and sociodemographic factors influencing engagement with premarital genetic screening among a young adult population in Moro LGA, Kwara State. Given the growing global and regional emphasis on genetic screening as a preventative measure for hereditary diseases particularly in high-prevalence regions the study aimed to explore how factors such as age, gender, education level, marital status, occupation and income shape individuals' perspectives and participation in premarital screening practices. The sociodemographic distribution of the respondents indicates a predominantly youthful population, with most participants aged between 18 and 40 years (mean age: 29.6 ± 6.8 years). The largest age group, 23–27 years (22.8%), represents those likely to be considering marriage or starting families underscoring the importance of premarital screening awareness and access among this cohort. Gender distribution revealed that females (56.4%) constituted a slightly higher proportion of respondents than males (43.6%).

Prior studies such as Christianti & Legiran, 2025 have found that women often take a leading role in family planning decisions which could influence attitudes toward premarital screening. In terms of educational attainment, more than half of respondents had at least a secondary education (56.2%) and a significant portion had tertiary education (30.0%) which suggests a generally literate population. However, the presence of individuals with no formal education (7.3%) or only primary education (6.3%) points to educational disparities that may affect awareness levels. Lower educational attainment is frequently correlated with reduced access to accurate health information, which may hinder understanding of genetic risk and the benefits of screening (Niyibizzi et al., 2023). Marital status analysis showed that the majority were single (58.8%), followed by married (32.5%) and engaged (7.3%) individuals. This is consistent with the youthful demographic and indicates that many are in a position to benefit from premarital screening. Since screening is ideally done before marriage, targeting singles and engaged individuals with educational campaigns could increase uptake and help prevent the transmission of genetic diseases.

This study assessed the level of awareness and understanding of premarital genotype screening, particularly regarding sickle cell disease (SCD) and to identify factors influencing awareness and uptake among young people. Although awareness of premarital genotype screening has gained traction globally, particularly in high-income countries with well-structured health systems, significant disparities remain in low- and middle-income countries like Nigeria which bears one of the highest burdens of SCD worldwide (Maigoro et al., 2024). The current findings revealed that 59.6% of respondents had heard about premarital genotype screening. While this suggests a moderate level of awareness, it is still lower compared to urban-based studies such as that of Adejumo & Ajayi (2022) in Ikorodu, Lagos, where awareness levels were as high as 88.5%. This difference underscores a persistent urban-rural divide in health awareness and access. The relatively lower awareness level in the present study aligns more closely with findings from semi-urban or rural contexts like Gombe State where only 41.4% of women of childbearing age had good knowledge of genotype screening (Agofure et al., 2020).

A study by Dilli (2024) indicate that the pooled uptake of premarital sickle cell trait screening in Africa is 47.82% . Moreover, 26.9% of respondents admitted not knowing the reason for genotype screening at all and 3.4% erroneously believed it was used to determine fertility. These misconceptions reflect a lack of comprehensive health education, which can dilute the effectiveness of awareness campaigns. This is particularly common in rural and semi-urban areas where health messages may not be appropriately tailored to local populations or distributed through accessible channels. Despite these knowledge gaps, the study found that 75.1% of respondents agreed that premarital genotype screening could help prevent genetic diseases in children. This indicates a generally positive perception and willingness to embrace preventive health practices when properly informed. This aligns with similar findings from Yaba, Lagos, where 92.4% of youths were willing to undergo screening even though only 46.3% had good knowledge of it (Oluwole et al., 2022). However, the most striking finding is the discrepancy between awareness and actual practice: only 41.6% of respondents had undergone premarital genotype screening despite the relatively high level of perceived importance. This gap mirrors patterns seen in other Nigerian studies and highlights the critical difference between knowledge and action. Factors such as cost, accessibility, cultural beliefs and lack of immediate perceived necessity (especially among unmarried individuals) may contribute to this disparity. Health institutions were most commonly identified as the appropriate venue for screening (63.7%), suggesting that formal healthcare channels are still trusted sources. However, the fact that 18.9% of respondents did not know where screening could be done reflects information dissemination gaps, possibly worsened by limited healthcare infrastructure or inconsistent health communication strategies.

CONCLUSION

This study highlights the critical importance of premarital genotype screening as a preventive measure against genetic disorders, particularly sickle cell disease (SCD), which remains a major public health challenge in Nigeria. Findings revealed that while awareness and positive attitudes toward screening are fairly widespread, especially among educated and urban-based youths, significant gaps persist in knowledge, uptake and access, particularly in rural and low-income communities. Most respondents recognized the importance of screening with over 80% expressing willingness to undergo testing. However, the actual uptake remained relatively low at 41.6%, underscoring the disconnect between awareness and practice. Barriers such as lack of awareness, misconceptions about health appearance, cost of screening, fear of stigma, limited access to health facilities and cultural or religious beliefs were commonly cited. Educational attainment proved to be a key predictor of awareness and understanding which points that improving education could substantially enhance informed decision-making. Family influence played a more decisive role than peer influence while schools and health workers were the most impactful sources of information. Hence, the study revealed the potential of leveraging familial and community support structures in premarital screening awareness campaigns for increased uptake.

RECOMMENDATIONS

To the Government:

- ✓ Integrate premarital genotype screening into national health policies and make it a mandatory requirement for couples intending to marry, particularly in high-prevalence regions.

- ✓ Subsidize or provide free genotype screening in public health facilities to make it affordable for low-income populations.
- ✓ Invest in health infrastructure by equipping rural health centers with trained personnel and modern laboratory facilities for genetic screening and counseling.
- ✓ Launch sustained national awareness campaigns through schools, media and community platforms to educate the public about genetic disorders and the importance of screening.

To Healthcare Providers:

- ✓ Provide consistent and culturally sensitive genetic counseling to individuals and couples ensuring that they understand the implications of their genotype results.
- ✓ Train more healthcare personnel in rural and underserved areas to perform genotype testing and offer pre- and post-test counseling.
- ✓ Integrate genotype education into routine clinical consultations and antenatal care services to reach a wider audience.

To Non-Governmental Organizations (NGOs):

- ✓ Support community outreach programs to educate populations in hard-to-reach areas about genetic health and the importance of premarital screening.
- ✓ Partner with schools and religious institutions to promote peer education and youth engagement on genotype awareness.
- ✓ Advocate for policy reforms that promote access to affordable and accessible screening services across all regions.

To Individuals and Families:

- ✓ Take personal responsibility by undergoing genotype screening and encouraging others to do the same before marriage.
- ✓ Educate children and dependents early about the importance of genotype compatibility and reproductive health.
- ✓ Challenge and correct misconceptions about genetic screening within families and communities by sharing accurate information.

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