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KNOWLEDGE AND PERCEPTION OF NURSING STUDENTS TOWARDS PREMARITAL GENETIC COUNSELLING FOR SICKLE CELL DISEASE IN COLLEGE OF NURSING SCIENCES, ADO-EKITI

Owolabi Wuraola Foluke[1], Owolabi Olamiposi Temidayo[2], Akintunde Choice Adenike[3], and Olarewaju Temitayo Ayo[4].

[1]College of Nursing Sciences, Ado Ekiti, Ekiti State.
Email: wuraowolabi01@gmail.com

[2]Federal Medical Centre, Ikole Ekiti, Ekiti State.
Email: owolabiolamiposit@gmail.com

[3]College of Nursing Sciences, Ado Ekiti, Ekiti State.
Email: choiceakintunde@gmail.com

[4]National Health Insurance Authority, Ado Ekiti, Ekiti State.
Email: ayoolarewaju28@gmail.com

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ABSTRACT: *Sickle cell disease (SCD) is a group of inherited blood disorders characterized by the presence of abnormal hemoglobin (HbSS), which causes red blood cells to become rigid and crescent shaped. This study assessed quantitatively assessed the knowledge and perception of premarital genetic counselling in the prevention of SCD among nursing students in a college of nursing sciences, Ado Ekiti. A descriptive cross-sectional design was employed, and data were collected from 195 participants using structured questionnaires. Analysis was conducted using SPSS version 27 and presented as frequency and percentage. The findings revealed a high level of knowledge (86%) and perception (93%), but a moderate level of practice (67%) of premarital genetic counselling was. About 90.3% of the respondents had heard of PGC, and 86.2% understood its purpose as assessing genetic compatibility, with over 90% acknowledging its importance. However, only 44.1% had attended a counselling session, and 63.1% had undergone genotype testing. Cultural and religious beliefs were cited as barriers to participation, even though 80.5% supported involving religious leaders in promoting PGC. The study recommends enhanced curriculum content, increased clinical exposure, community engagement, and nurse-led initiatives to promote Premarital genetic counselling and reduce the prevalence of SCD. Nurses and related healthcare workers were also encouraged to organize more outreach programs in secondary schools and tertiary institutions to encourage early knowledge of genotype compatibility.*

KEYWORDS: Knowledge, Perception, Practices, Premarital Genetic Counselling, and Sickle Cell Disease.

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INTRODUCTION

Sickle cell disease (SCD) continues to be one of the most impactful inherited haematological disorders in the world, with a disproportionately high burden in countries with low and middle income in sub-Saharan Africa (SSA) (Adeyemo et al., 2022). Recent epidemiological estimates indicate that approximately 7.74 million individuals were living with SCD in 2021, with about 515,000 affected births occurring annually. Notably, almost 80% of these births occur in sub-Saharan countries where health systems are facing severe structural challenges in early diagnosis, comprehensive treatment, and long-term disease management. Hence, SCD is an important cause of under-five mortality, accounting for 5%-16% of under-five deaths in the region (Kumar & Bhattacharya, 2024). The estimated number of births with SCD in Nigeria is around 150,000 per year, with 20% of the population affected and 25% carrying the sickle cell trait. This epidemiological profile highlights the need to move away from a curative-based strategy towards an approach that has a strong preventive focus that can be sustained at the resource level (Johnson et al., 2023).

Pathophysiologically, SCD is the result of the inheritance of an abnormal hemoglobin (HbSS), which causes erythrocytes to have a rigid, sickled shape when deoxygenated (Ademolakun et al., 2025). The changed cells have diminished deformability, which results in vaso-occlusion, chronic haemolysis, and complications to the various organs. The clinical picture is characterised by frequent headaches, anaemia, frequent infections, and accumulating organ damage, which may eventually result in shortened lifespan (Alsabbagh et al., 2020). In addition to the clinical impact, SCD is also a significant economic burden to individuals, families, and healthcare systems. In high-income settings, costs of healthcare for a lifetime have been estimated at nearly $1 million per patient, and annual costs from $10,000 for children to $30,000 for adults (Khaparde, 2025). Although similar cost data are scarce in sub-Saharan Africa, the economic strain is likely to be even greater, given lower incomes and limited health insurance coverage, and it is even more imperative, therefore, to implement preventive interventions.

Within this context, a simple primary prevention intervention called premarital genetic counselling (PGC) has been identified as an important tool for decreasing rates of SCD. PGC refers to the delivery of information, risk evaluation, and counseling to a person or couple about how their genes relate to each other and the possibility of passing an inherited disease to children (Jeter, 2016; Rhamat et al., 2022) There is evidence that the use of PGC can significantly decrease the number of high-risk unions, especially within the sickle cell trait category (HbAS), which consequently will reduce the incidence of affected births (Hardouin et al., 2023). In the same way, Adeyemo et al. (2022) noted that most of the respondents considered PGC as a vital pre-marriage step and an essential means of combating the prevalence of genetic disorders. Such a strategy is consistent with a more public health-oriented approach of prevention through exercise of informed reproductive choice, particularly in circumstances in which the majority have no access to the more advanced therapeutic options, especially bone marrow transplantation.

However, the successful implementation of PGC depends on the level of knowledge, favourable attitudes, and intention to adopt preventive actions among the target population. Knowledge of SCD and its genetic transmission is fundamental to enabling individuals to understand the implications of genotype compatibility. Various studies have repeatedly shown that the higher the awareness level, the greater the uptake of premarital screening and

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counselling services. However, just knowing the right thing to do doesn't necessarily mean people do it. Perception (the beliefs, attitudes, and subjective interpretations of genetic counselling and its significance in terms of personal and cultural contexts) mediates the translation of knowledge to practice (Wolters, 2021). Perceptions of PGC are deeply rooted in sociocultural and religious beliefs in many African societies. Marriage is often perceived as a social and family birth rather than a biomedical match, where the emotional, cultural, and spiritual factors are an important part. This means that people have sometimes been viewed as being intrusive, unnecessary, or inconsistent with religious values when discussing genetic risk. It is evident from the empirical data that knowledge about SCD and its genetic transmission varies between populations. For instance, while university students in the Democratic Republic of the Congo were aware of what SCD was (92.9%), only 37.9% knew that SCD is hereditary, and an extremely small percentage identified premarital screening as a preventative measure. Likewise, a study by Faremi et al. (2018) revealed that although most of the students in Nigeria had heard of SCD, they only showed correct knowledge of the diagnosis and inheritance pattern of SCD in a smaller proportion, while one-third had no knowledge of their genotype status. The results of the study reveal that there is a gap between knowing and understanding.

Perception of PGC further influences uptake, as it mediates the link between knowledge and practice. Studies across different contexts have consistently reported generally positive attitudes towards premarital screening. For example, Hamed et al. (2021) found the majority had positive attitudes towards premarital screening, and Maha Ali et al. (2018) found a majority of nursing students had positive attitudes towards premarital screening and wanted it to be implemented. But these positive perceptions often come with reservations. Sometimes, the anxiety surrounding cultural norms, autonomy, and the consequences of screening results for a marriage is raised. This complexity suggests that perception is multifaceted and influenced by elements of social, cultural, and ethical factors. This reluctance might also stem from sociocultural sensitivities related to marriage, and the role of external regulation of partner choice that is present is met with resistance. There is further complexity because of the difference in perception between the genders.

However, despite the relatively high levels of awareness and good perception, the practice of premarital genetic counselling is suboptimal. There is a clear and consistent evidence-based gap between knowledge and uptake of the behaviour. Boadu and Addoah (2018) reported a high level of awareness of SCD, only a limited proportion of students were knowledgeable, and practice-related behaviours were limited. In the same vein, research in Ghana and Nigeria has revealed that although many students are aware of the need for screening before marriage, fewer people actually go out to genotype test or seek counselling before marriage (Aboagye et al., 2019; Faremi et al., 2018). Despite the relatively high testing rate, even in settings with a relatively high testing rate like the study done by Abiye et al. (2020), gaps exist in comprehensive awareness and use of structured counselling services.

The problem is more acute in the training of healthcare professionals, especially nurses. Nursing students are expected to have an accurate knowledge of the subject and, as future members of the health care team, the ability to apply that knowledge in clinical practice and advance its application in advocacy. Current literature indicates, however, that they might not be optimally knowledgeable or using existing practices. For example, Isah et al. (2019) reported that while the nursing students had a high awareness of SCD, a few had good knowledge of premarital screening. Alsharkawy et al. (2021) also showed that there were educational gaps, as baseline knowledge, attitude, and practices were not optimal despite the

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significant improvements achieved through educational interventions. In addition, some structural and contextual factors still impact the uptake of PGC. Sociocultural beliefs, cost considerations, and access to services are key influencers on individual decision-making. Research like that of Muhammed and Ojo (2026) has confirmed that, in spite of their knowledge, practice could be low because of negative attitudes and other external factors, while only a small part of the respondents were found to be ready to seek premarital counselling. It highlights that health behaviour is a multifaceted process, and that personal knowledge and perception are shaped by other systems and cultural factors.

Considering the continued high prevalence of SCD in Nigeria and the existing disparity between knowledge, perception, and practice, it is necessary that specific studies be conducted in Nigeria, taking into consideration the research gaps highlighted and the critical population under study, which is the nursing students. These findings can help us understand their knowledge, attitudes, and involvement in the provision of genetic counselling prior to marriage, as well as the possibility of their future role in public health advocacy within the field. Furthermore, mapping what factors can affect their practice can help to drive efforts to narrow the practice-awareness gap through targeted interventions. In this aspect, the present study makes a contribution to the tremendous knowledge and perception of genetic counseling before marriage among the nursing students of the College of Nursing Science, Ado Ekiti, and the factors that influence the behavior of the students. These can be critical to inform curriculum development, policy making, and community-based interventions to decrease the prevalence of sickle cell disease through effective primary prevention strategies.

METHODOLOGY

Research Design

A descriptive cross-sectional design was employed to assess the knowledge, perception, and practice of premarital genetic counselling for sickle cell disease among nursing students at the College of Nursing Sciences, Ado Ekiti.

Study Setting and Population

The study was conducted at the College of Nursing Sciences, Ado Ekiti, a government-owned tertiary health training institution located within the premises of Ekiti State University Teaching Hospital (EKSUTH), Ado Ekiti, Nigeria. The institution serves as a major training centre for nursing students and provides access to clinical exposure through its affiliation with EKSUTH. The target population consisted of male and female nursing students enrolled in the College of Nursing Sciences, Ado Ekiti.

Inclusion and Exclusion Criteria

Students in ND I and HND I levels who were available during the study period were included. Students who declined participation were excluded from the study. ND II students were excluded because they were not around during the period of the study.

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Sample Size and Sampling Technique

The sample size was determined using the Yamane formula:

$n = N / [1 + N(e)^2]$

Where N represents the population size (382), and e is the level of precision (0.05). The calculated sample size was approximately 195 respondents. A simple random sampling technique was adopted for the study. Eligible ND I and HND I students were selected randomly from the student population until the required sample size of 195 respondents was obtained. Participation was voluntary, and only students who consented to participate were included in the study. This approach helped to reduce selection bias and enhance the representativeness of the sample.

Instrument for Data Collection

Data were collected using a structured questionnaire adapted from previous validated studies (Oludare & Ogili, 2020; Oyetunde, 2020; Edward et al., 2022). The instrument comprised four sections: demographic characteristics, knowledge of sickle cell disease, perception of premarital genetic counselling, practice of premarital genetic counselling.

Knowledge was assessed using five knowledge-related items. Each correct response was assigned one point, while incorrect responses attracted zero points, yielding a maximum score of five. Respondents who scored 60% and above (3–5 points) were categorized as having good knowledge, whereas those who scored below 60% (0–2 points) were categorized as having poor knowledge.

Perception towards PGC was assessed using six perception statements measured on a five-point Likert scale (Strongly disagree to strongly agree). The scores obtained from all items were summed to generate an overall perception score (maximum of 30 points). Respondents who scored 70% were classified as having a positive perception, while those who scored below were classified as having a negative perception towards PGC.

Practice was assessed using four practice-related items, giving a maximum of four score. Respondents who scored 3-5 points (75% and above) were categorised as having good practice while those having 0-2 points were categorised as poor knowledge.

Validity and Reliability of Instrument

Face and content validity of the instrument were established through expert review by the research supervisor, and necessary revisions were made prior to data collection. Reliability was assessed through a pilot study involving 10% of the sample size (n = 19) among students with similar characteristics but outside the study population.

Data Analysis

Using SPSS, data were analyzed via descriptive statistics, including frequencies and percentages, and presented in tables and charts. Inferential analysis was conducted using the chi-square test to examine associations between variables.

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Ethical Considerations

Permission to conduct the study was obtained from the Provost of the College of Nursing Sciences, Ado Ekiti, prior to data collection. Participants were informed about the purpose and objectives of the study, and their participation was entirely voluntary. Written informed consent was obtained from all respondents before questionnaire administration. Respondents were assured of confidentiality and anonymity, and no identifying information was collected. Participants were also informed of their right to decline participation or withdraw from the study at any stage without any consequences.

RESULTS

Table 1: Socio-Demographic of Respondents

	Categories	**Frequency**	**Percentage**
Age (yrs)	17-20	98	50.3%
	21-24	61	31.3%
	25-28	28	14.4%
	29 and above	8	4.1%
Religion	Christian	189	96.9%
	Muslim	4	2.1%
	Traditional	2	1.0%
Ethnicity	Yoruba	177	90.8%
	Igbo	12	6.2%
	Hausa	2	1.0%
	Others	4	2.1%
Marital Status	Single	187	95.9%
	Married	6	3.1%
	Divorced	2	1.0%
	Widowed	0	0.0%
Genotype	AA	147	75.4%
	AS	32	16.4%
	SS	2	1.0%
	AC	6	3.1%
	SC	2	1.0%
	I don’t know	6	3.1%
Class	ND 1	108	55.4%
	HND 1	87	44.6%
Disease History	Yes	12	6.2%
	No	179	91.8%
	I don't know	4	2.1%
	Total	**195**	**100.0%**

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Table 1 shows that the majority of respondents were aged 17–20 years, making up 50.3% of the total sample, followed by 31.3% between 21–24 years, 14.4% aged 25–28 years. In terms of religion, 96.9% identified as Christian, 2.1% as Muslim, and 1.0% as practicing traditional religion. Ethnic distribution showed that 90.8% were Yoruba, 6.2% Igbo, 1.0% Hausa, and 2.1% belonged to other ethnic groups. The majority were single (95.9%), while 3.1% were married and 1.0% divorced. Regarding genotype, 75.4% were AA, 16.4% AS, 3.1% AC, 1.0% SS, 1.0% SC, and another 3.1% did not know their genotype. In terms of academic level, 55.4% were in ND 1 and 44.6% in HND 1. Lastly, 91.8% reported no family history of SCD, 6.2% acknowledged such a history, and 2.1% were unsure.

Knowledge of Premarital Genetic Counselling

Table 2 also revealed that awareness of PGC was high, with 90.3% having heard of it. When asked about its purpose, 86.2% correctly identified genetic compatibility assessment, while 5.1% believed it was to cure sickle cell disease, 2.1% thought it was to plan a wedding, and 6.7% didn't know the purpose. Regarding which genotype combination could result in a child having sickle cell disease, 94.9% correctly chose AS and AS, while 2.1% each selected AA and AS or AA and AA, and another 2.1% were unsure. As to who can conduct counseling, 69.2% agreed it should be done by formally trained individuals, while 30.8% disagreed. Additionally, 89.7% believed that genetic counseling helps save high-risk marriages from genetic disorders.

Table 2: Knowledge About Premarital Genetic Counselling (PGC)

Variables	Categories	Frequency	Percent
Heard of premarital genetic counseling?	Yes	176	90.3%
	No	19	9.7%
What was the purpose of PGC?	To plan a wedding	4	2.1%
	To assess genetic compatibility	168	86.2%
	To cure SCD	10	5.1%
	I don't know	13	6.7%
Which genotype can result in a child having sickle cell disease	AA and AS	2	1.0%
	AS and AS	185	94.9%
	AA and AA	4	2.1%
	I don't know	4	2.1%
PGC can only be done by formally trained personnel	Yes	135	69.2%
	No	60	30.8%
PGC helps save high-risk marriages of genetic disorders	Yes	175	89.7%
	No	14	7.2%
	I don't know	6	3.1%
	Total	**195**	**100.0%**

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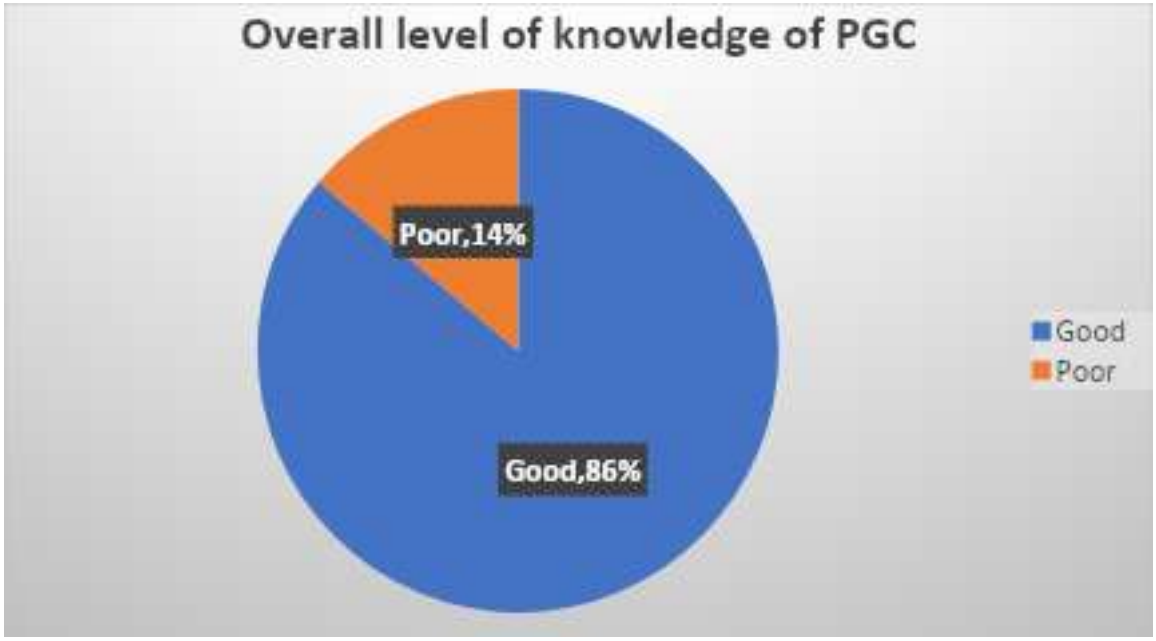
Figure 1: Level of knowledge about premarital genetic counselling



The figure above shows that most of the respondents 86% have a good level of knowledge of premarital genetic counselling, while the remaining 14% had poor level.

Perception Towards Premarital Genetic Counselling

Table 3: Perception Towards Premarital Genetic Counselling

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
PGC is important for preventing sickle cell disease	4(2.1%)	2(1.0%)	0(0.0%)	44(22.6%)	145(74.4%)
It's a wise decision to avoid marriage if both partners have incompatible genotypes	0(0.0%)	8(4.1%)	0(0.0%)	43(22.1%)	144(73.8%)
Counselling may interfere with personal and religious beliefs	14(7.1%)	36(18.5%)	0(0.0%)	95(48.7%)	50(25.6%)
Genetic counselling is only necessary for those already diagnosed with sickle cell	70(35.9%)	88(45.1%)	0(0.0%)	21(10.8)	16(8.2%)
Genetic counselling should be mandatory before marriage	6(3.1%)	4(2.1%)	0(0.0%)	56(28.7%)	129(66.2%)
I would personally undergo genetic counselling before marriage	0(0.0%)	10(5.1%)	0(0.0%)	72(36.9%)	113(57.9%)

Table 3 shows that the respondents generally had a very positive perception. A large number of the respondents 74.4% strongly agreed, and 22.6% agreed that premarital genetic counselling is important in preventing sickle cell disease. Likewise, 73.8% strongly agreed, and 22.1% agreed that it is wise to avoid marrying someone with an incompatible genotype.

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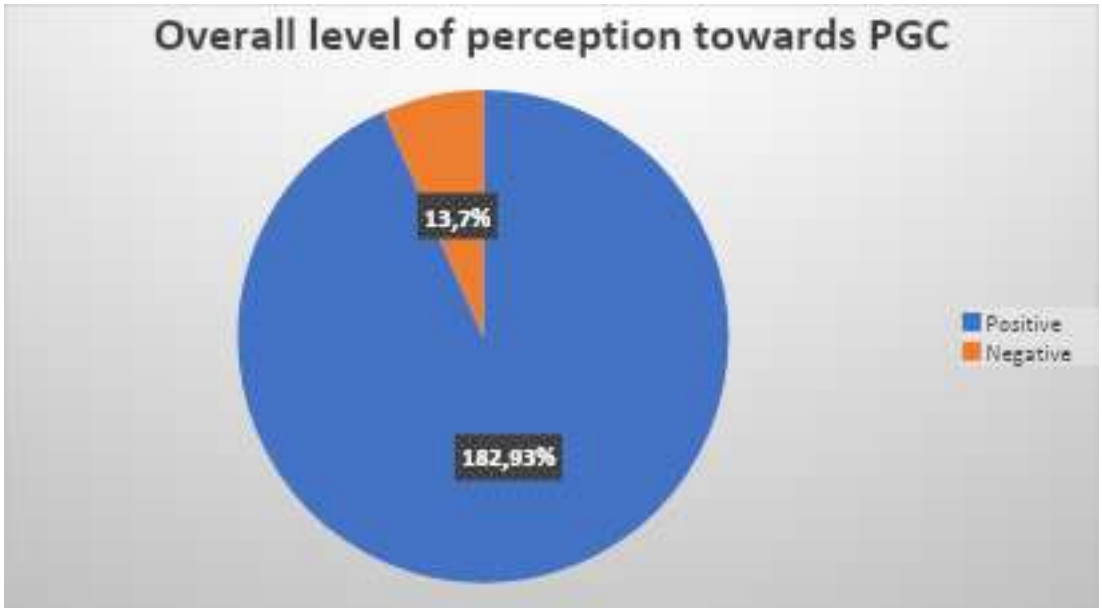
However, perceptions around counseling interfering with beliefs were mixed 48.7% agreed, and 25.6% strongly agreed that it might interfere with religious or personal beliefs. On whether genetic counseling is only for those diagnosed with SCD, 81% disagreed. The majority agreed 94.9% that genetic counselling should be mandatory before marriage. In terms of personal intent, 57.9% strongly agreed, and 36.9% agreed they would undergo genetic counselling before marriage. Finally, 73.3% strongly agreed, and 24.6% agreed that nurses have a role in public education about genetic counselling.

Figure 2: Overall level of perception towards premarital genetic counseling



Most of the respondents 93% have a positive perception towards PGC, while the remaining 7% had a negative perception.

Practice of Premarital Genetic Counselling

Table 4 shows that about 44.1% had attended a premarital genetic counselling session, while 55.9% had not. Of those who had attended, 21.5% were counselled by nurses, 15.9% by doctors, 12.8% by genetic counsellors, 4.1% through religious beliefs, and 45.6% cited others. When asked how often they discussed genetic compatibility with their partners before marriage, 36.4% said always, 32.3% said sometimes, and 21.0% never. In terms of testing, 63.1% had undergone a genetic test, and 93.8% would recommend PGC to others.

Table 4: Practice of Premarital Genetic Counselling

Variables	Categories	Frequency	Percentage
Have you ever attended a PGC session?	Yes	86	44.1%
	No	109	55.9%
If yes, who provided the counseling?	Doctor	31	15.9%
	Nurses	42	21.5%
	Genetic counsellor	25	12.8%
	Religious belief	8	4.1%
	Others	89	45.6%

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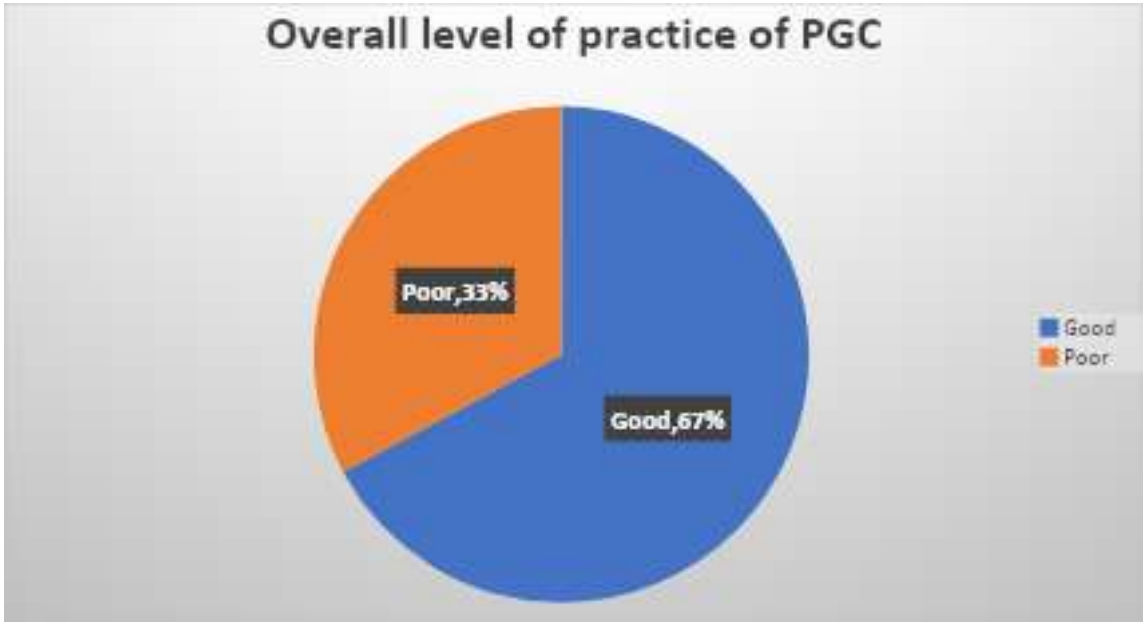
How often do you discuss genetic compatibility with your partner before marriage?	Never	41	21.0%
	Rarely	20	10.3%
	Sometimes	63	32.3%
	Always	71	36.4%
Undergone any genetic tests (e.g., genotype) as part of premarital preparation?	Yes	123	63.1%
	No	72	36.9%
Would you recommend PGC to others planning to marry	Yes	183	93.8%
	No	8	4.1%
	Not sure	4	2.1%
	Total	**195**	**100.0%**

Figure 3: Overall level of practice of premarital genetic counselling



About two-thirds (67%) of the respondents have good practice of PGC, while 33% had poor practice towards it.

Association between knowledge and perception of practice of PGC

Table 5: Relationship between perception and practice of PGC in the prevention of SCD.

Perception of PGC	Practice of PGC		Total	X^2	df	p-value
	Good	Poor				
Positive	131	51	182	28.510	1	<0.001
Negative	0	13	13			
Total	**131**	**64**	**195**			

X^2 = Pearson chi-square

In contrast, Table 5 reveals a statistically significant association between perception and practice of premarital genetic counselling ($\chi^2 = 28.510$, df = 1, $p < 0.001$). Respondents with

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positive perceptions were substantially more likely to demonstrate good practice compared to those with negative perceptions.

DISCUSSION OF FINDINGS

The present study aimed to explore the knowledge, perception, and practice of premarital genetic counselling (PGC) among the nursing students, which showed a high level of knowledge and positive perceptions, and a generally moderate level of practice. This trend echoes the evidence base that supports the awareness-behavioural uptake disconnect in sickle cell disease prevention. When it came to knowledge, the result showed that the percentage of good knowledge about PGC by the respondents was 86%, indicating a fairly high level of knowledge among the respondents. This is in contrast to previous African studies, which have found much lower knowledge levels. For example, only 34.1% of the nursing students in Sokoto had good knowledge of sickle cell disease, which was determined by Isah et al. (2019); also, more than 60% of the respondents had poor knowledge of inherited disorders and premarital genetic counselling as reported by Makanjuola et al. (2018). Likewise, Boadu and Addoah (2018) reported that 7.1% of the students had good knowledge of the lesson, while there was a high percentage that showed moderate and poor knowledge. Although awareness was high in some situations, in the study by Kambale et al. (2020) in the Democratic Republic of the Congo, there were still significant gaps in knowledge, with only 37.9% understanding that SCD is a hereditary condition, and few people were aware of premarital screening as a prevention measure.

The overall higher level of knowledge found in this study could be due to the fact that health knowledge education has been improved in recent years, especially in the process of nursing training. This is further supported by Adamolekun et al. (2025) and Adeshina et al. (2022), who reported a good knowledge of the genotype screening before marriage, among 63.3% and 75.77% respectively of the respondents. But there is also a danger that high knowledge scores are not interpreted as complete understanding, as warned in the literature. An example study by Oluwole et al. (2022) shows that even if the general knowledge is moderate, there are specific knowledge gaps, such as knowledge based on individual genotype status, that can exist. Additionally, intervention studies such as Alsharkawy et al. (2021) indicate that knowledge can be significantly enhanced after participating in structured educational programmes, suggesting that baseline knowledge may still not be comprehensive or coherent. The high level of knowledge observed in this study is therefore encouraging, but may be functional knowledge, not practical.

The study revealed that 93% had a positive perception towards PGC, meaning that there was a high amount of attitudinal support for PGC in the prevention of sickle cell disease. This result corroborates multiple studies in various settings. Ugwu (2019) found that 96% of the students recognized premarital counselling and screening as important, and Adeyemo et al. (2022) noted that 81% of the respondents strongly agreed that PGC should be conducted prior to marriage to prevent genetic diseases. Likewise, Hamed et al. (2021) found that more than two-thirds of the participants had a positive attitude towards premarital screening. The results taken together indicate that there is widespread positive perception of PGC even where knowledge is limited.

However, not all studies report uniformly high perception. Adamolekun et al. (2025) showed that only 58.3% had a positive perception of genetic counseling, while Muhammed and Ojo

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(2026) reported that 69% of the respondents had a negative attitude toward premarital genetic counseling. These contrasts suggest a context-dependency of perception that can be shaped by sociocultural, educational, and informational aspects. Furthermore, perception is not a guaranteed indicator of good implementation strategy support. For example, research has found that people's fears of losing personal autonomy, beliefs about culture, and religious values could restrict support for compulsory screening policies. This indicates that perception is multi-dimensional, on one hand with acceptance of the concept and on the other hand with reservations about its application.

Concerning practice, the good practice rate of 67% among respondents suggested moderate adoption of premarital genetic counselling-related behaviours. This is a relatively high level of knowledge compared to some previous studies, but it is still below the level of observed knowledge and perception. This is in line with the literature. For instance, Ojo and Muhammed (2026) reported that 20.9% of respondents indicated they were willing to engage in premarital counseling even though they had different levels of knowledge, whereas Alsharkawy et al. (2021) noted that while the majority initially showed a poor practice, they showed varying levels of knowledge before the education. In this regard, even when awareness and attitude are high, the programs are not proportionate, as occurred in the study of Hamed et al. (2021). Other studies have found, however, that the reverse may be true, that is, practice gets better when information and services are greater. High genotype testing (92.8%) was observed among the academic staff, while more than half of the respondents had not undertaken formal premarital counselling, representing a difference in screening behaviour and engagement with counselling. Over 92% of academic staff engaged in the genotype testing, but more than half were not visiting formal pre-marital counselling, with a difference made between screening and counselling engagement. Likewise, Abiye et al. (2020) reported that genotypings were high among university students but not all the students had a complete awareness. The results indicate that there are aspects of PGC that can be introduced, but there is no consistent uptake of PGC as a structured preventive strategy.

A significant association between perception and practice ($\chi^2 = 28.510$, $p < 0.001$) was observed, showing that those respondents who perceived positively were more likely to engage in good practice. This result is in line with Alsharkawy et al. (2021), who found a good positive correlation between knowledge, attitude, and practice after the educational intervention. Likewise, Hamed et al. (2021) found that there are high correlations between scores of knowledge, perception, and attitude. The results corroborate attitudinal models which focus on attitudinal variables as determinants of health-related behaviours. The lack of consistent relationships among those studies, however, indicates that perception alone does not necessarily ensure practice. For example, despite having a positive association between knowledge and attitude, there was a non-significant relationship between attitude and practice as observed by Muhammed and Ojo (2026). This difference reflects the impact of other contextual factors, like access to services, price, stigma, and sociocultural expectations. Although people have good knowledge and a positive attitude, these external factors could hinder their capability and willingness to participate in premarital genetic counselling.

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CONCLUSION AND RECOMMENDATIONS

This study shows that nursing students have a high level of knowledge and a very positive attitude towards premarital genetic counselling for SCD. But the level of practice is comparatively low, confirming that there is still less uptake of the behaviour in reality than awareness. Additionally, the results confirm that perception plays a significant role in practice, as a positive attitude plays an important role in engaging in the premarital genetic counselling program. Despite that, there remain structural, sociocultural, and accessibility barriers to optimal use. Based on these findings, it is recommended that future nursing curricula be enriched by having specific and practical units on genetic counselling that will provide the depth of knowledge and applied competence in this field. More clinical and simulation-based learning should be integrated to support experiential learning. Moreover, it is recommended that healthcare facilities offer the services of genetic counselling for the purpose of pre-marriage and make these services available to healthcare facilities that are not tertiary. In addition, community and religious leaders should be engaged in public health interventions to overcome cultural barriers and increase acceptance. Lastly, campaigns of general awareness should highlight the importance of preventive approaches (such as early genotype screening and counselling) in order to convert knowledge into practice.

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