



Knowledge and Attitude of Premarital Genotype Screening Among Women of Child-Bearing Age in Kumo-Akko Local Government Area of Gombe State Nigeria

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Abstract

Background: The prevalence of sickle cell anemia has been shown to be on the increase in Nigeria. Therefore preventive measures like premarital genotype screening have been proposed as one of the ways of reducing the scourge of the disease. Therefore, this study was designed to assess the knowledge and attitude of women of child bearing age in Kumo Akko Local Government Area of Gombe State.

Methods: The study adopted a descriptive cross sectional design. A total of 296 respondents were sampled through simple random sampling technique and the collected data were analyzed using Statistical Product for Service Solution (SPSS) version 20.0.

Results: Majority of the respondents 200 (71.40%) were between the ages of 15 to 34 years old and 64 (22.90%) of the respondents affirmed that they had a family history of sickle cell disease. In addition, 58.60% of the respondents demonstrated poor knowledge of premarital genotype screening while 57.10% exhibited negative perception towards premarital genotype screening and 63.20% exhibited poor attitude towards premarital genotype screening. There was a significant relationship between respondents with family history of sickle cell anemia and their knowledge of premarital genotype screening ($P=0.000$).

Conclusion: Therefore, efforts should be intensified by the governments and health workers in primary, secondary and tertiary level of health care deliveries, to raise awareness on the importance of premarital genotype screening in order to reduce the prevalence of the disease.

Keywords: Attitude; Knowledge; Perception; Premarital genotype screening; Sickle cell anemia

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Introduction

Genetic diseases which are hereditary in nature, is caused by abnormality in an individual's genome [1,2]. Sickle Cell Disease (SCD) a type of genetic disease is a group of hereditary disorders characterized by red cells that contain an abnormal form of hemoglobin called Hbs [3]. Sickle cell disease is as a result of the substitution of the amino acid glutamic acid with valine in the globin chain structure thereby altering the configuration of the whole protein molecule [3,4]. Sickle cell disease is an autosomal recessive genetically transmitted hemoglobinopathy responsible for considerable morbidity and mortality [5]. It is associated mainly with people whose ancestors came from sub-Saharan Africa, India, Saudi Arabia and Mediterranean country [6]. Nigeria by virtue of her large population has the greatest number of sufferers of SCD in the world with an estimated 24% prevalence of sickle cell trait, 100,000 annual SCD births and 100,000 annual SCD infant deaths [7-9]. Low levels of awareness and knowledge of premarital genotype screening has been a recurrent problem in Nigeria. For instance a study carried out in Delta State showed that only 30% of the participants were knowledgeable of premarital genotype screening [10]. Furthermore, other studies showed it is a problem widespread in Africa. A study in Uganda showed only 48% knew that SCD is inherited, while 44.2% did not know the cause of SCD and 68.7% of the respondents said they cannot marry a person with SCD [11]. The stigma associated with the disease among families in Africa has also been highlighted [11,12]. Therefore this study was designed to investigate the knowledge of premarital genotype screening among women of child bearing age as premarital genotype screening remains one of the surest ways of preventing the occurrence of sickle cell disease in the population.

Methodology

Study design

The study utilized a descriptive cross sectional study.

Study area

The study was conducted in Kumo Community of Akko Local Government Area of Gombe state.

Study population

Women of children bearing age (15 to 49 years), who reside in Kumo community, were used for the study.

Inclusion criteria

All women of child bearing age (15 to 49 years), who reside in Kumo community who have given their consent was used for the study.

Exclusion criteria

Women who were not of child bearing age and those unwilling to be part of the study were excluded.

Sample size determination

Sample size was determined using single population proportion formula by Lwanga and Lemeshow, $n = Z^2 p (1-p)/d^2$, with the following assumptions: prevalence (p) of 73.4% from previous study (Ugwu, 2016), 95% confidence level, 5% margin of error; giving a sample size of 296 [13].

Sampling procedure

Kumo town of Akko L.G.A. has eleven wards namely; Kumo Center, Kumo East, Kumo North, Garko Ward, Kalshingi Ward, Tukulma Ward, Tumu Ward, Pindiga Ward, Akko Ward, Kumo West and Kashere Ward. A two stage sampling method was used, the first stage involved randomly picking six out of the eleven wards by balloting which include; Kumo Center, Kumo North, Kalshingi Ward, Kashere Ward, Kumo West and Kumo East, out of the eleven wards in Kumo as mentioned above, while the second stage involved randomly administering the questionnaire to the respondents in those selected wards.

Instrument for data collection

A questionnaire was used for collection of the data. The questionnaire was structured into sections A to D. Section A comprised socio-demographic characteristics of the respondents; Section B comprised Knowledge of premarital screening for sickle cell anemia, Section C Perception towards premarital genotype screening and Section D Attitude towards premarital genotype screening for sickle cell anemia.

Data analysis

Completed copies of the questionnaire were retrieved and entered into the computer and analyzed using the Statistical Product for Service Solution version 20.0. The data was presented in simple percentage, frequency distribution while Chi-Square and logistic regression were used to analyze variables of interest at $P < 0.05$. Knowledge of premarital genotype screening was measured on a 5 point scale graded; 0 to 2 poor knowledge of premarital genotype screening while > 2 good knowledge of premarital genotype screening. In addition, Perception towards premarital genotype screening was measured on a 5 point scale graded; 0 to 2 negative perception towards premarital genotype screening while > 2 positive perception towards premarital genotype screening. Furthermore, attitude towards premarital

Table 1: Socio-demographic characteristics of the respondents.

Variable	Frequency	Percentage	Knowledge of Premarital Genotype Screening
Age			
15-34	200	71.4	
35-54	75	26.8	
55-74	4	1.4	
75-94	1	0.4	
Total	280	100	
Religion			
Christian	134	47.9	
Muslim	96	34.3	
Others	50	17.9	
Total	280	100	
Marital Status			
Single	90	32.1	0.306
Married	113	40.4	
Divorced	26	9.3	
Widow	51	18.2	
Total	280	100	
If married how many children			
0-4	114	55.7	
5-9	64	33.5	
10-14	10	5.2	
15-19	2	1	
20-24	1	0.5	
Total	280	100	
Do you have any family history of sickle cell disease			
Yes	64	22.9	0.00
No	103	36.8	
Don't Know	113	40.4	
Total	280	100%	

genotype screening was measured on an 8 point scale graded; 0 to 4 poor attitude towards premarital genotype screening while > 4 good attitude towards premarital genotype screening.

Ethical consideration

Ethical approval was sought from Akko Local Government Area and the Research and Ethical Committee of the Department of Public and Community Health, Novena University Ogume Nigeria. The study followed the ethical principles guiding the use of human participants in research.

Results

Knowledge of premarital genotype screening

Majority of the respondents 205 (73.20%) have heard of premarital genotype screening with hospital being their source of information (Table 1). Furthermore, 87 (42.40%) of the respondents mentioned AA, AS, SS as type of genotype they know and majority 151 (73.70%) affirmed that patient with SS gene is said to be carrying the sickle cell genotype gene (Figure 1).

Perception towards premarital genotype screening

More than one third of the respondents 97 (34.60%) agreed

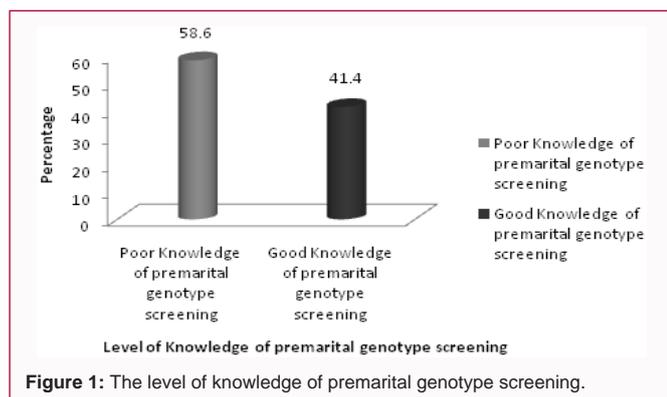


Figure 1: The level of knowledge of premarital genotype screening.

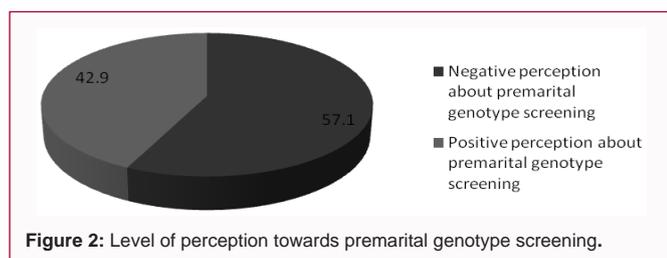


Figure 2: Level of perception towards premarital genotype screening.

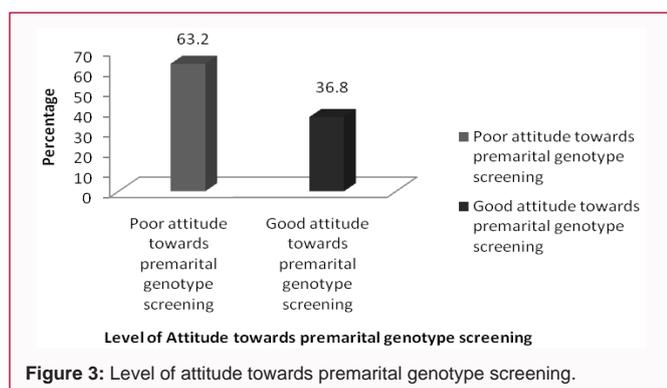


Figure 3: Level of attitude towards premarital genotype screening.

that premarital genotype screening is just a waste of time while 111 (39.60%) agreed that because of lack of trust of laboratory results they will not undergo premarital genotype screening (Figure 2). Almost one third 85 (30.40%) strongly agreed that premarital genotype screening is necessary once you agree to get married while 76 (27.10%) agreed that the way to reduce this disease burden in a family is through premarital genotype screening and 60 (21.40%) strongly agree that it is mandatory to screen women of child bearing age before marriage (Figure 3).

Discussion

The study showed that majority of the respondents were between the ages of 15 to 34 years old while almost half were Christians and more than one third were married. In addition, some of the respondents affirmed that they had a family history of sickle cell disease. This was similar to previous studies where the respondents age groups were between 16 to 36 years [14]. The findings of the study showed that almost all of the respondents were aware of premarital screening for sickle cell anemia. This finding is similar to previous study where majority of the respondents were aware of sickle cell disease [15-17]. Furthermore, more of the respondents had hospital as their source of information of sickle cell screening. This is similar to previous study where the respondents had health personnel as their

main source of information of sickle cell disease [10]. However the finding was different from a previous study where the respondents affirmed school as their source of information of genetic disease [16]. In addition, only few agreed to go for genotype screening test before marriage. This finding is in contrast with previous study among youths where majority agreed to go for genotype screening [16]. This shows that despite the awareness of the respondents of premarital genotype screening only few would want to go for the test. Thus more awareness campaign on sickle cell anemia among women of child bearing age should be regularly embarked upon especially in Northern Nigeria. In addition, since more of the respondents were married only few affirmed to do pre-genotype screening when preparing for their marriage. The results of the test showed that more of the respondents that did pre-genotype test had AS and are therefore carriers of the genetic gene. This finding was in contrast to the finding of a previous study where more of the respondents had AA [16]. In addition, the level of awareness of the respondents on premarital genotype screening did not translate to their knowledge of premarital genotype screening as more than half of the respondents 58.60% demonstrated poor knowledge of premarital genotype screening. This finding is similar to the findings of previous studies in Nigeria where the respondents demonstrated poor knowledge of premarital genotype testing [10]. The finding was however different from the findings of previous studies in Nigeria among youths where the respondents demonstrated good knowledge of sickle cell disease [3,18]. Furthermore, there was a significant association of family history of sickle cell anemia and knowledge of premarital genotype screening as respondents who had family history of the disease were 7 times more likely to have knowledge of premarital genotype screening than respondents who neither had or do not know if they had family history of sickle cell anemia (OR=7.007 95% CI=3.540-13.872). Furthermore, more than half of the respondents exhibited negative perception towards premarital genotype screening. This can be attributed to their poor knowledge of premarital genotype screening. Furthermore, most of the respondents believe premarital genotype screening is just a waste of time and lack of trust on laboratory results is why they would not undergo premarital genotype screening. This finding is similar to a previous study in Nigeria [16]. This perception of premarital genotype screening among the respondents shows more enlightenment program on the importance of premarital genotype screening among intending couples should be embarked upon to increase the rate of screening among intending couples in Nigeria. Furthermore, there was a significant difference between the knowledge of premarital genotype screening and perception towards premarital genotype screening among the respondents. This poor perception of premarital genotype screening is similar to previous study [19]. In the same vein, there was a poor attitude towards premarital genotype screening among the respondents. This finding was contrary to the finding of a study in Ile-Ife and Lagos South-Western Nigeria where almost all of the respondents demonstrated good attitude towards premarital genotype screening [1,18]. This finding of the study could also be attributed to the poor knowledge and perception of premarital genotype screening by the respondents. Furthermore, there was a significant relationship between the knowledge of premarital genotype screening by the respondents and their attitude towards premarital genotype screening. Some of the respondents agreed and disagreed premarital genotype screening is necessary once you agree to marry while many disagree that premarital genotype screening is a sure way to reduce the burden of sickle cell disease. Furthermore, some of the respondents believe they would be exposed if they go

for sickle cell screening while some believes no one would agree to marry them if they are positive to sickle cell. This finding highlight the issue of stigmatization associated with the disease which can hinder screening. Therefore, more awareness and advocacy is needed in communities across Nigeria to sensitize the populace on the importance of premarital genotype screening.

Recommendations

Based on the findings of the study the following recommendations were made

- There is need for intensive enlightenment campaign on premarital genotype screening before marriage especially among those with family history of the disease across communities in Nigeria as this would help in reducing the incidence of sickle cell disease.
- Furthermore, the facilities for premarital genotype screening should be made accessible, affordable and available at all levels of health care delivery.
- Government and non-governmental organization should work collaboratively to establish screening centers.

Limitation of the Study

In accessing the knowledge, perception and attitude towards premarital genotype screening, the study relied solely on the responses of the participants which could be subject to bias.

Conclusion

The respondents were aware of premarital genotype screening, however most demonstrated poor knowledge of premarital genotype screening. Furthermore, the respondents exhibited poor attitude and practices towards premarital genotype screening. This calls for urgent awareness and campaign in the study area to prevent the spread of the sickle cell gene in the community.

References

1. Abioye-Kuteyi EA, Oyegbade O, Bello I, Osakwe C. Sickle cell knowledge, premarital screening and marital decisions among local government workers in Ile-Ife, Nigeria. *Afr J Prim Health Care Fam Med*. 2009;1(1):22-5.
2. Austin MA, Hutter CM, Zimmern RL, Humphries SE. Genetic Causes of Monogenic Heterozygous Familial Hypercholesterolemia: A HuGE Prevalence Review. *Am J Epidemiol*. 2004;160(5):407-20.
3. Faremi AF, Olatubi MI, Lawal YR. Knowledge of Sickle Cell Disease and Pre-Marital Genotype Screening among Students of a Tertiary Educational Institution in South Western Nigeria. *Int J Caring Sci*. 2018;11(1):285.
4. Guyton AC, Hall JE. *Textbook of medical physiology*. 10th ed. London. WB Saunders Company. 1999.
5. Kamble M, Chatruvedi P. "Epidemiology of Sickle Cell Disease in a rural hospital of central India. *Indian Pediatr*. 2000;37(4):391-6.
6. Lawson JB. Sickle cell disease in pregnancy. In: Stewar OB, editor. *Obstetrics and Gynecology in the tropic and developing countries*. London. 2004.
7. Diwe K, Iwu AC, Uwakwe K, Duru C, Merenu I, Ogunniyan T, et al. Prevalence and Patterns of Sickle Cell Disease among Children Attending Tertiary and Non-Tertiary Health Care Institutions in a South Eastern State, Nigeria: A 10 year Survey. *J Res Med Dent Sci*. 2016;4(3).
8. Federal Ministry of Health Nigeria. *National Guideline for the control and management of Sickle cell disease*. 2014.
9. World Health Organization (WHO). *Sickle Cell disease prevention and control*. 2006.
10. Iweriebor OB. Knowledge Attitude and Practice towards pre-marital/prenatal genetic testing among young people (15-45) years of age in Sapele Local Government Area, Delta State, Nigeria. *South Am J Academic Res*. 2015;2(1).
11. Tusubira SK, Nakayinga R, Mwambi B, Odda J, Kiconco S, Komuhangi A. Knowledge, perception and practices towards sickle cell disease: a community survey among adults in Lubaga division, Kampala Uganda. *BMC Public Health*. 2018;18:561.
12. Marsh VM, Kamuya D, Molyneux S. 'All her children are born that way': gendered experiences of stigma in families affected by sickle cell disorder in rural Kenya. *Ethnicity & Health*. 2011;16(4-5):343-59.
13. Lwanga SK, Lemeshow S. *Sample Size determination in health studies: A Practical Manual*. World Health Organization Geneva. 1991.
14. Bazauye GN, Olayemi EE. Knowledge and Attitude of Senior Secondary Schools Students in Benin City Nigeria to Sickle Cells Disease. *World J Med Sci*. 2009;4(1):46-9.
15. Omuemu VO, Obarisiagbon OE, Ogboghodo EO. Awareness and acceptability of premarital screening of sickle cell disease among undergraduates of university of Benin, Benin City, Edo State. *J Biomed Sci*. 2013;12(1):91-1045.
16. Oyedele E, Emmanuel A, Gaji LD, Ahure DE. Awareness and acceptance of premarital genotype screening among youth in a Nigerian community. *Int J Med Health Res*. 2015;1(1):17-21.
17. Adewoyin AS, Alagbe AE, Adedokun BO, Idubor NT. Knowledge, Attitude and Control Practices of Sickle Cell Disease among Youth Corps Members in Benin City, Nigeria. *Ann Ib Postgrad Med*. 2015;13(2):100-7.
18. Oludare GO, Ogili MC. Knowledge, attitude and practice of premarital counseling for sickle cell disease among youth in Yaba, Nigeria. *Afr J Reprod Health*. 2013;17(4):175-82.
19. Al-Farsi OA, Al-Farsi YM, Gupta I, Ouhtit A, Al-Farsi KS, Al-Adawi S. A study on knowledge, attitude, and practice towards premarital carrier screening among adults attending primary healthcare centers in a region in Oman. *BMC Public Health*. 2014;14:380.