ASSESSMENT OF AWARENESS OF PREMARITAL GENOTYPE SCREENING AMONG SENIOR SECONDARY SCHOOL STUDENTS IN PLATEAU STATE, NIGERIA

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Abstract

This study assessed the awareness of premarital genotype screening among senior secondary school students in plateau state, Nigeria. Ex-post facto research design was used. A multistage sampling technique involving stratified random sampling, simple random sampling and proportional sampling was used for the study. The instrument used for data collection was a researcher- developed questionaire. Four hundrend (400) copies of the questionnaire were administered to the respondents, Three hundred and eighty six (386; 96.5%) were valid and used for the analyses. Data collected was analysed using inferential statistics of one sample t-test at 0.05 alpha level. The results obtained revealed that the awareness of premarital genotype screening among senior secondary school students in Plateau State, Nigeria is significant. Based on the findings of the study, it was therefore, recommended that senior secondary school students' awareness on premarital genotype screening should be sustain and encouraged through health education and school clubs to improve on the awareness obtained.

Keywords: Awareness, Premarital, Genotype screening, among senior secondary school students.

Introduction

Premarital genotype screening gives opportunity for individuals to become informed about their genetic predisposition to diseases and for couples to be aware of the possible genetic characteristics of their unborn children (Abd-Al-Azeem, Elsayed, El-Sherbiny, & Ahmed, 2011). Premarital genotype screening creates an opportunity for people to take informed decision on the genetic predisposition of their unborn children (Akhigbe, Ige, Afolabi, Azeez, Adegunlola & Bamidele, 2009). Hence, if one holds the view that one of the reasons for marriage is procreation, then worrying about genetic compatibility and avoiding genetic inheritance of grave consequence becomes something of concern (Akhigbe *et al.,* 2009). A person that receives one defective gene from both father and mother develops the disease, while a person that receives one defective and one healthy gene remains healthy, but can pass on the disease and is known as a carrier. If two parents who are carriers have a child, there is a 1-in-4 chance of their child developing the disease and a 1-in-2 chance of being just a carrier (Ashley-Koch, Yang, & Olney, 2000).

Awareness of premarital genotype screening according to Baker (2006), is the knowledge and skills needed to understand and use information relating to health issue such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies and staying healthy. Awareness is also defined by Rootman and Gordon-Elbihbety (2008), as the ability to access, understand, evaluate and communicate information as a way to promote, maintain and improve health in a variety of setting across the life-course. Sickle cell disease is one of the commonest genetic disorders in Nigeria, about 24% of the population are carriers of the mutant gene and prevalence (at birth) is 2% that is 15,000 children are born with sickle cell disease genotype annually in Nigeria alone World Health Organisation, 2006).

The Sickle Cell Family Nigeria (2011) encouraged every Nigerian to embrace genotype screening before marriage or child birth stating that the strategy reduces the incidence and prevalence of sickle cell diseases that has no cure. Premarital screening consists of a comprehensive group of tests, especially for those who are planning to get married. Most youths today are either unmarried or intending to get married, involve in premarital sex and will procreate in the future. This group of persons particularly senior secondary school students are the target population who will benefit from appropriate interventions aimed at preventive and/or control measure against socio-economic and psychological burden that may result from marriages of genetically incompatible partner.

Research Question

What is the awareness of premarital genotype screening among senior secondary school students in Plateau State, Nigeria?

Hypothesis

Awareness of premarital genotype screening among senior secondary school students in Plateau State, Nigeria is not significant.

Method and Materials

The research design used for this study is ex-post facto research design. The population of this study is 76,621 which comprised of all senior secondary school students in Plateau State, Nigeria (Plateau State Educational Resource Centre 2017). The sample size for this study comprised of four hundred (400) male and female senior secondary school students in Plateau State, Nigeria. Multistage sampling procedure of stratified sampling technique, simple random sampling, and proportionate sampling procedure were used. Stage one, the local government areas within Plateau state were stratified into the three (3) already exiting senatorial districts namely; Plateau north senatorial district with six (6) local government areas, Plateau central senatorial district with five (5) local government areas, and Plateau south senatorial districts with six (6) local government areas. Stage two, the researcher used simple random sampling procedure to select two (2) local government areas from each senatorial district, the names of all local government areas in the state were written on pieces of paper folded and dropped in a container. Using the deep-hat method, one of the research assistants picked any of the pieces of paper from the container and the name of the local government area on the piece of paper were written down. The researcher and her research assistants continued with the procedure until the required six (6) local government areas for the study were obtained. Random sampling procedure was used to select twelve (12) senior secondary schools to be sampled. Stage three, proportionate sampling procedure was used to select the needed sample size from the twelve (12) senior secondary schools, because the schools do not have equal number of respondents. The sample size was determined using Yamane's formula for calculating sample size, Yamane (1967), suggested a simplified formula for calculation of sample size from a population, according to Yamane (1967), for a 95% confidence level and *p.* 0.05, size of the sample should be

$$n = \frac{N}{1 + N\left(e^2\right)}$$

Where, *N* is the population size and are the level of precision. A close-ended questionnaire was used for data collection. The instrument was based on a modified 4point Likert-scale which required the respondents to tick the responses on each statement that is appropriate to their choices. In order to validate the questionnaire, five (5) experts vetted the questionnaire. Their professional comments, observations, corrections and suggestions made were strictly adhered to.

Thus, a corrected draft copy of the questionnaire was produced and used for the collection of data from the respondents. In order to gain access to the respondents in the various selected senior secondary schools in Plateau state, the researcher and three (3) research assistants met with the schools' administrators and obtained permission by giving them introductory letter, the questionnaire was distributed and retrieved during school hours. Descriptive statistics of mean and standard deviation were used to answer the research question and one sample t-test was used to test the formulated hypotheses at 0.05% alpha level.

Results and Discussion

Research Question One: What is the awareness of premarital genotype screening among senior secondary school students in Plateau State, Nigeria?

Table 1: Mean Score of responses on the awareness of premarital genotype screening among senior secondary school students

Item	Mean	Std. Dev.
I know my genotype	2.6	1.3
I know that premarital genotype screening can be done in any hospital	2.9	1.2
I am aware that premarital genotype screening does help people to know their genotype	3.0	1.3
I know that premarital genotype screening is a way to reduce genetic disease like sickle cell	3.1	1.2
I know that premarital genotype screening is a screening done before marriage to discover any abnormality in my blood sample	3.4	1.3
I know that premarital genotype screening is necessary once the couples have agreed to marry.	3.3	1.2
I know that information on premarital genotype screening can be acquired in school	2.9	1.3
I know that premarital genotype screening at early stage of relationship will help me on the choice of marriage partner to prevent and decrease the chance of coping with the disorder.	3.2	1.2
I know that prenatal genotype screening may result in ethical and moral challenges because positive results may suggest termination of the pregnancy.	2.9	1.2
I know that I t is only through blood test one will know his/her genotype	3.2	1.4
I know that the inheritance of a single haemoglobin (Hbs) gene results in a healthy sickle cell carrier.	2.7	1.2
I know that the inheritance of the haemoglobin gene (Hbs) from both parents or haemoglobin gene results in symptomatic sickle cell disease.	2.9	1.3
I know that access to newborn screening for sickle cell disease or sickle cell trait is limited because of economic constraints.	2.8	1.3
I know that premarital genotype screening will reduce sickle cell disease burden on the family.	3.2	1.3
I know that premarital genotype screening will explain the risk of the marriage to the couple will explain the risk of the marriage to the couple by helping them to have a clear view of the risk before they make informed decision.	3.3	1.3
Aggregate Mean	3.0	

Constant mean 2.5.

A careful observation of Table 4.2 reveals that senior secondary school students in Plateau State, Nigeria were aware of some aspect of premarital genotype screening. However, they (senior secondary school students) are most aware (3.4) that premarital genotype screening is a screening done before marriage to discover any abnormality in person's blood sample. **Hypothesis 1:** Awareness of premarital genotype screening among senior secondary school students in Plateau State, Nigeria is not significant

Table 2: One Sample t-test Analysis on the Awareness of premarital genotype screening among senior secondary school students

Awareness	Mean	SD	Df	t-cal	t-crit.	P-value
	45.1	13.29	384	11.635	1.96	.000

t (384) = 1.96< 0.05

The analysis of results in table 4.6 reveals that the p-value of .000 is less than the alpha value of 0.05 Alpha level. Hence, the null hypothesis was rejected and the alternate is retained. This implied that senior secondary school students in Plateau State, Nigeria were aware of premarital genotype screening.

Discussion

From the result obtained on the awareness of premarital genotype screening among senior secondary school students in Plateau State, the null hypothesis was rejected. This implies that the awareness of premarital genotype screening among senior secondary school students in Plateau State is significant. This finding is in consistent with the finding of Oyedele, Emmanuel, Gaji and Ahure (2015), on the awareness and acceptability of premarital genotype screening among youths in a Nigerian community, who affirmed reasonable level of awareness among the respondents. However, there is a need for enlightenment about the causes and prevention of genetic diseases in Jos, Nigeria. Omuemu, Obarisiagbon and Ogbohodo (2013), revealed in their study that there was a high level of awareness and knowledge of haemoglobin genotype and sickle cell disease among the respondents. On the other hand, Bazuaye and Olayemi (2009), reported in their study on knowledge and attitude of senior secondary school students in Benin City Nigeria to sickle cell disease that awareness on premarital genotype screening is lacking in their study which is in contrast to this study.

Conclusions

Based on the findings of this study, it is concluded that senior secondary school students in Plateau State, Nigeria are aware of premarital genotype screening.

Recommendations

Based on the conclusions drawn from the study, it was recommended that, Senior secondary school students' awareness on premarital genotype screening should be sustain and encouraged through health education and school clubs to improve on the awareness obtained.

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