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Awareness and Knowledge of Sickle Cell Disease in Rivers State, Nigeria

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Abstract

Previous study has assessed patient awareness about management of sickle cell disease (SCD) which indicates that there is a lack of awareness about the disease and possibly a need for more awareness. Therefore, our study aimed at Awareness & Knowledge of Sickle Cell Disease in Rivers State, Nigeria. The study was conducted from October 2018 to February 2019. A questionnaire was distributed among 154 persons selected from among the general public. Most (75.0%) had heard of SCD and 35.0% knew that it can be diagnosed by a blood test, but 33.3% did not know the prevalence of SCD in Nigeria. 50(41.7%) recognized it as a hereditary disorder. Professional/university students gave the most correct answers; Females showed better knowledge than males and married persons seems to know more about SCD than unmarried ones. There is a fair level of knowledge about SCD among the respondents, though some of the respondents were confused about the difference between the carrier state of a disease and the disease itself. Health education should be intensified to impact sufficient comprehensive knowledge about SCD to enable the public take informed decision about their marriage so as to prevent procreation of children affected with SCD.

Keywords: *Awareness, Knowledge Sickle Cell Disease, Rivers State, Nigeria.*

Introduction

Genetic diseases, especially hereditary blood disorders such as sickle cell disease (SCD) are a significant problem in many countries. Its highest prevalence occurs in Middle East, Mediterranean regions, Southeast Asia, and sub-Saharan Africa especially Nigeria (WHO, 1989; Serjeant, 1997). Their chronic nature, with no prospect of cure, makes them important causes of morbidity and mortality. About 5–7% of the global population carries an abnormal haemoglobin gene (Modell & Darlison, 2008; WHO, 2008). The most predominant form of haemoglobinopathy worldwide is sickle cell disease. The greatest burden of the disease lies in sub-Saharan Africa and Asia (Piel et al., 2013). The prevalence of sickle cell trait ranges between 10 and 45% in various parts of sub-Saharan Africa (Okwi, 2010; WHO, 2013). In Nigeria, carrier prevalence is about 20 to 30% (Fleming et al., 1979; Uzoegwu & Onwurah, 2003), While SCD prevalence is about 2 to 3% (Fleming et al., 1979). Recent estimate from a large retrospective study by Nwogoh et al. (2012) in Benin City, South-South Nigeria revealed an SCD prevalence of 2.39% and a carrier rate of about 23%.

Despite SCD being a global health issue, not much has been done to create awareness (Adeyemo, 2009). Key to prevention is an understanding of how SCD and are inherited from parents in the same way as blood type or any physical traits. Therefore, our study aimed at Awareness & knowledge of Sickle Cell Disease in Rivers State, Nigeria

Methodology

The study was conducted from October 2018 to February 2019. A questionnaire was developed to cover some of the questions about SCD which were adapted from the study carried out by Boyd et al. (2005). The questionnaires were distributed among 154 persons from the study population. The first part of the questionnaire requested personal information such as age, gender, level of education, and number of children. The data was coded and processed using SPSS v 2.0. Frequency tables were obtained and statistical analysis was done using chi square.

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Results

A total of 154 individuals responded to the invitation to participate in the study. Of the 154 respondents, 120 (80%) completed the study; 34 (22.1%) dropped out of the study before completion. The final sample consisted of 120 respondents who were recruited from Port-Harcourt Metropolis. Most of the respondents were males 66(55%), aged 18-27(22.5%), single 38 (31.7%), at university/professionals 32(26.7%), No family history of SCD 46(38.3%) and those with 1 or 3 children 44(36.7%) (**Table 1**).

Knowledge about SCD displayed by the participants is shown in **Table 2**. Majority of the participants 90(75%) were aware of the existence of SCD. Fifty (41.7%) participants know that SCD is an inherited disease; 43(35.8%) know that there are different kinds of traits that can lead SCD and can be diagnosed with blood test; 43(35.8%). Other knowledge about sickle cell disease displayed by the participants are shown in **Table 2.**

Respondent's knowledge on the best way to create SCD Awareness is shown in **Table 3**. Television & Radio were the most frequent source of information in creating awareness, 77(64.2%). Other sources of information include health education 55 (45.8. %), Newspaper 46(38.3%), internet 51(42.5%), & Posters 47 (39.2%).

Table 4 shows Respondents knowledge on the best way to prevent SCD. 42 (35.0%) know that sickle cell disease can be prevented via pre-marital screening, 37(30.8%) health education, 32(26.7%) Enactment of law, 40(33.3%) students screening & 29(24.2%) during Ante-natal screening.

Table 5 summarizes the Relationship between SCD level of awareness & Some Demographic Characteristics. Professionals/University students showed a good level of awareness about SCD (50.0%) than the respondents with lower level of education [secondary& primary (43.3%) & never been to (42.0%)]. Although there was no significant difference between level of awareness & level of Education (P=0.000). More also there was no significant difference between level of SCD awareness and gender of respondents ($p > 0.73$); female showed better knowledge of awareness about SCD (53.7%) than males (50.0%). Respondents who were ≥46 years gave more correct answers (61.5%), which was significantly better than the other age categories (*P*>.0608). The age group of 35-40 years was the next best (52.4%). Married women, showed a better level of awareness of SCD (54.8%) than the single individuals (52.6%).

Table 1. Participant's socio demographic characteristics

Parameters	**No. Enrolled(N=120)**	**Percentage enrolled (%)**
Gender		
Male	66	55.0
Female	54	45.0
Age group (Years)		
18-25	27	22.5
26-34	21	17.5
35-40	21	17.5
41-45	25	20.8
≥46	26	21.7
Marital status		
Married	31	25.8
Single	38	31.7
Divorced	31	25.8
Widowed	20	16.7
Level of Education		
Never been to school	28	23.3
Primary	30	25.0
Secondary	30	25.0
University/Professional	32	26.7

school		
No. of Children **1-3** **4-6** **None**	 44 43 33	 36.7 35.8 27.5

Table 2. Respondents' knowledge about sickle cell disease (SCD)

Variables	**Yes**	**No**	**Don't know**
Have you ever heard of SCD?	90(75.0%)	20(16.7%)	10(8. 3%)
Do you know if you have sickle cell anemia?	35(29.2%)	42(35%)	43(35.8%
What is the prevalence of SCD in Nigeria?	Correct answer 2-3% 20(16.7%) 10(8.3%)	Incorrect 60(50.0)	40(33.3%)
What is the prevalence of SCT in Nigeria?	Correct answer 20-30% 20(16.7%)	Incorrect 60(50.0)	40(33.3)
Is SCD an inherited disorder?	50(41.7%)	40(33.3%)	30(25.0%)
Does any person in your family have SCD?	40(33.3%)	35(29.2%)	45(37.5)
Do you know anyone outside your family that has SCD?	42(35.0%)	41(34.2%)	41(34.2)
Are there different kinds of trait that can lead to sickle cell anemia?	43(35.8%)	36(30.0%)	38(31.7%)
Can Sickle cell disease be identified by a blood test?	43(35.8%)	37(30.8%)	40(33.3%)
Are you aware if you a carrier of SCT?	40(33.3%)	20(16.7%)	60(50.0)
If you have SCT could your brother & sister have it too?	45(37.5%)	40(33.3%)	35(29.2%)
Do both parents need to have SCT for a baby to be born with SCD?	50(42.0%)	30(25.0%)	40(33.3%)
Can SCD affect school performance in children?	60(50.0%)	40(33.3%)	20(16.7%)
Have you heard premarital sickle cell screening?	50(41.6%)	42(35.0%)	28(23.3%)
Did you undertake premarital sickle cell screening before marriage?	49(40.8%)	37(30.8%)	34(28.3%)
Is there a cure for SCD?	41(34.2%)	48(40.0%)	32(25.8%)

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Table 3. Respondents knowledge on the best way to create SCD Awareness

Variables	Yes (%)	No (%)	I don't know (%)
Television & Radio	77(64.2)	25(20.8)	18(15.0)
Health education	55(45.8)	34(28.3)	31(25.8)
News paper	46(38.3)	49(40.8)	25(20.8)
Internet	51(42.5)	36(30.0)	33(27.5)
Posters	47(39.2)	30(25.0)	43(35.8)

Table 4. Respondents knowledge on the best way to prevent SCD

Variables	Yes (%)	No (%)	I don't know (%)
Premarital checking	42(35.0)	50(41.6)	28(23.3)
Health Education	37(30.8)	54(45.0)	29(24.2)
Enactment of Law	32(26.7)	67(55.8)	21(17.5)
Students Screening Program	40(33.3)	57(47.5)	23(19.2)
During Antenatal screening	29(24.2)	64(53.3)	27(22.5)

Table 5. Relationship between SCD awareness & Some Demographic Characteristics

Parameter	Proportion n=120 (%)	Level of awareness (%)			χ^2	P-value
		Good	Average	Poor		
Level of Education						
Professional/University	32(26.7)	16(50.0)	10(31.3)	6(18.8)		
Primary school	30(25.0)	13(43.3)	11(36.7)	8(26.7)	**38.270**	**0.000**
Secondary School	30(25.0)	13(43.3)	11(36.7)	6(20.0)		
None	28(23.3)	12(42.9)	10(35.7)	4(14.3)		
Total	**120(100.0)**	**54(45.0)**	**42(35.0)**	**24(20.0)**		
Gender						
Male	66(55.0)	33(50.0)	23(34.8)	10(15.2)		
Female	54(45.0)	29(53.7)	13(24.1)	12(22.2)	**0.641**	**0.726**
Total	**120(100.0)**	**62(51.7)**	**36(30.0)**	**22(18.3)**		
Age group (Years)						
18-25	27(22.5)	14(51.9)	9(33.3)	4(14.8)		
26-34	21(17.5	10(47.6)	6(28.6)	5(23.8)	**1.834**	**0.608**
35-40	21(17.5)	11(52.4)	7(33.3)	3(14.3)		
41-45	25(20.8)	13(52.0)	8(32.0)	4(30.8)		
≥46	26(21.7)	16 (61.5)	7(26.9)	3(11.5)		
Total	**120(100.0)**	**64(53.3)**	**37(30.8)**	**19(15.8)**		
Marital status						
Married	31(25.8)	17(54.8)	9(29.0)	5(16.1)		
Single	38(31.7)	20(52.6)	11(28.9)	7(18.4)	**22.990**	**0.028**
Divorced	31(25.8)	15(48.4)	10(32.3)	6(19.3)		
Widowed	20(16.7)	10(50.0)	6(30.0)	4(20.0)		
Total	**120(100.0)**	**62(51.7)**	**36(30.0)**	**22(18.3)**		

Discussion

Our study reveals that the respondents had some basic knowledge of SCD. Majority have heard and aware of SCD (75.0%). This is similar to the report of Durotoye et al., (2013) reported that 79.5% of their participants had heard about SCD. They were aware that SCD can be identified by a blood test

and that there are different types of SCD. However, in-depth knowledge about the pattern of inheritance seems to be lacking. The majority did not know the prevalence of the disease or what the carrier status is and how it differs from the disease status.

Our study also reveals that the respondents' level of education had an impact on the level of awareness. Professionals/University students were more aware of hereditary blood disease than the respondents with lower level of education. This could be attributed to the fact that this category was the target of many national campaigns. Compared to the results reported by Adewuyi, (2000) where Professionals/University students had markedly deficient knowledge regarding SCD, the professionals/University students in our study had a good/fair knowledge regarding the disease.

We also found that females gave more correct answers than males. This can be attributed to many factors; for example, females receive health education as part of their antenatal care; moreover, in most families they are generally the ones taking care of the family's health and consequently they tend to be more interested in learning about genetic blood diseases.

We also analyzed the relationship between level of awareness and age. We got expected results. We expected older respondents to answer more questions correctly but this was different from the study reported by Shaikha & Amani (2010) who got unexpected results; for example, those in the age-group of 50-59 years gave fewer correct answers than younger people. Therefore, we believe that integrating the relevant information into the school curriculums is essential.

As we expected, married women were better informed than single women. Married couples would have gone through premarital testing and counseling and therefore can be expected to be more knowledgeable about these diseases. Also, many of them were married and some were preparing for marriage and in the process were taught about SCD and were also screened for their genotype.

Conclusion

Majority of respondents were aware of SCD but many of them lack adequate comprehensive knowledge about SCD. Health education should be reinforced to impact adequate comprehensive knowledge about SCD. This will help equip people to take informed decisions and actions about SCD awareness with consequent prevention and control of the disease.

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