ORIGINAL RESEARCH ARTICLE

Knowledge, Attitude and Practice of Premarital Counseling for Sickle Cell Disease Among Youth in Yaba, Nigeria

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Abstract

Nigeria accounts for 50% of sickle cell disease (SCD) births worldwide and about 2.3% of her population suffers from SCD with 25% of Nigerians being healthy carriers[1,2]. This study determined the knowledge, attitude and practice of youths in Yaba, Nigeria towards pre-marital genetic counseling. Data was collected using a questionnaire containing both open ended and closed ended questions. The questionnaires (n= 280) were analyzed by frequency counts, percentages and chi-square. The study shows that 80% of youths had knowledge, 86% had positive attitude and 65% had practiced things related to SCD and premarital counseling. There was a significant association between respondents' educational qualification and knowledge, attitude and practices related to SCD and SCD premarital counseling, and between age and attitude and practices related to SCD premarital counseling. In conclusion, public education on the role of premarital genetic counseling should continue and avenues to allow individuals carry out genotype test should still be encouraged. *(Afr J Reprod Health 2013; 17[4]: 175-182).*

Keywords: Premarital counseling, sickle cell disease, malaria, haemoglobin and genotype.

Résumé

Le Nigeria enregistre environ 50 % des naissances des souffrants de la drépanocytose dans le monde et environ 2,3% de sa population souffre de la drépanocytose avec 25% des Nigérians sont des porteurs sains de germes. Cette étude a déterminé les connaissances, les attitudes et les pratiques des jeunes gens à Yaba, Nigeria, vers le conseil génétique prénuptial. Les données ont été recueillies à l'aide d''un questionnaire contenant les questions à la fois ouvertes et fermées. Les questionnaires (n = 280) ont été analysés par les numérations des fréquences, les pourcentages et du chi-carré. L'étude montre que 80 % des jeunes avaient la connaissance, 86% avaient une attitude positive et 65 % avaient pratiqué des choses liées à la drépanocytose et le conseil prénuptial. Il y avait une association significative entre les diplômes des interviewés et les connaissances, les attitudes et les pratiques liées à la drépanocytose et aux conseils drépanocytaires et prénuptiaux, et entre l'âge et l'attitude et les pratiques liées aux conseils drépanocytose et prénuptiaux. En conclusion, la sensibilisation du public sur le rôle du conseil génétique prénuptial devrait se poursuivre et il faut toujours encourager la manière qui permettre aux individus d'effectuer l'analyse pour déterminer leur génotype. *(Afr J Reprod Health 2013; 17[4]: 175-182).*

Mots-clés: conseil prénuptial, drépanocytose, le paludisme, hémoglobine et le génotype

Introduction

Sickle- cell disease (SCD) is an autosomal recessive genetic blood disorder characterized by red blood cells that assume an abnormal, rigid and sickle shape. Sickling occurs because of a mutation in the hemoglobin gene that decreases the cells' flexibility, resulting in vascular-occlusive complications such as painful episodes at extremities and chest, stroke, priapism, liver disease, leg ulcers, spontaneous abortion, renal insufficiency among others. 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[3].

According to WHO, the sickle-cell trait is now known to be widespread, reaching its highest

prevalence in parts of Africa as well as among people with origins in equatorial Africa, the Mediterranean basin and Saudi Arabia. In Africa, the highest prevalence of sickle-cell trait occurs between latitudes 15° north and 20° south, ranging between 10% and 40% of the population in some areas. Prevalence levels decrease to between 1% and 2% in North Africa and to less than 1% in southern Africa. In countries such as Cameroon, Republic of Congo, Gabon, Ghana and Nigeria, the prevalence is between 20% and 30% while in some parts of Uganda it is as high as 45%[4]. About 2.3% of the Nigerian population suffers from sickle cell disease and about 25% of Nigerians are healthy carriers of the abnormal hemoglobin gene[1]. Out of about 300,000 births of sickle cell diseases worldwide, Nigeria records about 150,000 births annually[2].

The geographic distribution of the sickle-cell trait is very similar to that of malaria and this may explain why it has been maintained at such high prevalence levels in tropical Africa[5,6]. There has been much recent speculation that global warming may allow the reestablishment of malaria transmission in previously endemic areas such as Europe and the United States[7-10]. If this happens, the spread of malaria in Africa might most likely be doubled[11]. This might result in the proliferation of the sickle cell trait, underscoring the need for comprehensive pre-marital genetic counseling. Genetic counseling has been defined as "the process by which patients or relatives at risk of a disorder that may be hereditary are advised of the consequences of the disorder, the probability of developing or transmitting it and the ways this may be prevented, avoided or ameliorated"[12]. The process of premarital genetic counseling is primarily educational, and is non-directive in nature. It aims at helping individuals at risk to make their own informed decisions according to their own values[12].

Premarital counseling for haemoglobinopathies (inherited single gene disorders of the blood) has been introduced in several countries in the Arab region including Saudi Arabia, Bahrain, United Arab Emirates, Tunisia, Iran, and Jordan[13-16]. A 1999 report from Iran showed that couples counseled still opted to marry rather than separate but they requested prenatal diagnosis and selective termination of pregnancy. This led to an amendment of the law in 2001 to allow the option of selective termination of pregnancy up to 15 weeks' gestation for thalassemia (form of SCD) resulting in a 70% reduction in the annual birth rate of affected infants[17]. In Nigeria, premarital genetic counseling is voluntary, but most religious bodies usually make genetic testing mandatory before the couples can be joined together.

Given the relatively high prevalence of SCD in Nigeria and the potential increase related to malaria re-establishment due to climate change, efforts to increase the uptake of premarital counseling need to be increased. The rise in premarital sex coupled with delay in marriage among the youth in urban areas calls for an aggressive sensitization campaign to increase positive behaviors related to reducing the prevalence of SCD. This study therefore aimed at assessing the knowledge, attitude and practices related to SCD and premarital counseling among youths in Yaba, an urban area in Lagos, Nigeria. The findings of this study will contribute towards understanding the current SCD-related gaps in knowledge and practice among these youth, which will inform policy makers on the nature and content of programs targeting them.

Methodology

Study Objective

The objective of this study was to determine the influence of age, sex, educational qualification, and religion on the youths' knowledge, attitude, and practices related to SCD and SCD premarital counseling.

Study Population

Study respondents were drawn from Yaba Local Council Development Area (LCDA), a subset of the Lagos mainland Local Government. While the exact population of Yaba LCDA is unknown, the Lagos state government estimates the population of the Lagos mainland Local Government at 629,469 (326,433 males and 303,036 females)[18]. By excluding children, adults, married youths, and the aged, the population of unmarried youth, the

target of this study, could be estimated to be tens of thousands.

Data Collection and Analysis

From the 12 major communities in the Yaba LCDA, five were selected by simple random sampling, including Jibowu, Makoko, Iwaya, Abule-oja and Sabo-Yaba. A minimum of five streets in each community were visited and unmarried youths found in their homes were randomly selected to participate in the study. In addition, only youths who voluntarily gave their consent participated in the study. Data collection was done on weekends for a period of seven consecutive weekends.

A questionnaire comprising open ended and closed ended questions was used. Sixty questionnaires were allocated to each of the five communities. The questionnaire had different sections including socio-demographic data, knowledge on SCD and SCD premarital counseling, attitude towards SCD and SCD premarital counseling, and practices related to SCD premarital counseling. Structured closed questions offering a dichotomous choice of 'yes' or 'no' as well as a Likert rating scale ranging from strongly agree to strongly disagree were used. The Likert scale was reduced to the nominal level by combining all agree and the disagree responses into accept and reject. The questionnaires were given to the respondents to complete and collected at the same time to ensure compliance. In spite of this, only two hundred and eighty of the questionnaires were properly filled and were therefore collated and used for data analysis. Data were analysed using both descriptive and inferential statistics which include frequency counts, percentages, and hypothesis test using chi square at $P<0.05$.

Results

Socio-Demographic data

A total of 280 duly completed questionnaires were used to represent the population studied. The mean age of the respondents was 23.35 ± 0.25 (mean ± standard error of mean), which is the age of preparation for marriage in this part of Nigeria. 59% of the respondents were male while 41% were females. Majority of the respondents (61%) had a secondary school education as the highest educational qualification attained. 70% were Christians and 30% of the respondents were Muslims. 53% were students, while 30% were self-employed and 17% were civil servants.

Table 1: Socio-demographic Characteristic of respondents'

Characteristic	Frequency	%
Age Category (in years)		
15-19	76	27
20-24	84	30
25-29	88	32
30-34	32	11
Mean Age of respondents = 23.35 ± 0.25		
Gender		
Male	164	59
Female	116	41
Highest educational Background		
Primary School	16	6
Secondary School	172	61
Post-Secondary School	92	33
Religion		
Christianity	196	70
Islam	84	30
Others	0	0
Designation		
Student	148	53
Civil Servant	48	17
Self- Employed	84	30

N=280

Respondents' knowledge on SCD and SCD premarital counseling

Seven questions were used to access the knowledge of the youths on SCD and SCD premarital counseling. The key domains addressed by the questions include, having heard about SCD previously, knows that SCD can be transmitted from parent to offspring's, aware that SCD is incurable, aware that marriage of two AS partners could result in a child being born with SCD, aware of the psychological and cost effect of managing a SCD child, aware that appropriate premarital counseling reduces the incidence of SCD and knows his or her genotype. On the average, 80%

of the respondents were knowledgeable about SCD and SCD pre-marital counseling. Of these, 45% were males and 35% females. Majority of the respondents (49.1%) had secondary school education and 57% were Christians and 23% of the knowledgeable youths were Muslims. The age group with the highest lack of knowledge on SCD and SCD premarital counseling was age group 15-19 which had 8.8% out of the 19.75% of the unknowledgeable youths. Table 2 shows the Pearson Chi square data that shows the association of age, gender, educational qualification and religion of the respondents on their knowledge of SCD and SCD premarital counseling. There was a significant association between respondents' educational qualification and their knowledge of SCD and SCD premarital counseling, while no significant association was found with age, gender and religion of the respondents on their knowledge of SCD and SCD premarital counseling.

Table 2: Relationship of age, gender, educational qualification and religion of the respondents with their knowledge on SCD and SCD premarital counseling

Variable	**Response**				
Age	Yes	%	No	%	Total
15-19	51	18.33	25	8.81	27.14
20-24	69	24.58	15	5.41	29.99
25-29	74	26.31	14	5.12	31.43
30-34	31	11.01	1	0.41	11.42
Total	225	80.23	55	19.75	99.98
$\chi2$ cal= 4.08 $\chi2$ table= 7.81, d.f = 3					
Gender	Yes	%	No	%	Total
Male	127	45.48	37	13.1	58.58
Female	97	34.49	19	6.67	41.16
Total	224	79.97	56	19.77l	99.74
$\chi2$ cal= 0.577 $\chi2$ table = 3.84, d.f = 1					
Educational qualification	Yes	%	No	%	Total
Primary School	3	1.01	13	4.7	5.71
Secondary School	138	49.1	34	12.26	61.36
Post-Secondary School	84	30.07	8	2.81	32.88
Total	225	80.18	55	19.77	99.95
$\chi2$ cal= 16.21 $\chi2$ table = 5.99, d.f = 2					
Religion	Yes	%	No	%	Total
Christianity	160	57.08	36	12.92	70
Islam	65	23.15	19	6.85	30
Total	225	80.23	55	19.75	100
$\chi2$ cal= 0.251 $\chi2$ table = 3.84, d.f = 1					

Respondents' attitude towards SCD and SCD premarital counseling

The questions that were used to access the respondents' attitude towards SCD and SCD premarital counseling includes; youths do not need genetic counseling, will never attend any counseling or seminar on SCD, will marry my fiancée or fiancé even if we are both AS and does not attach any importance to premarital counseling before marriage because I'm not likely to be a carrier. 13.4% of the respondents showed a negative attitude towards SCD and SCD premarital counseling. Of these, 9.93 % were males and 3.49% females. Majority of these respondents (8.86%) had secondary school education and majority of the respondents also belonged to the age group 15-19 (6.78%). 8.5% were Christians and 4.93% were Muslims.

Table 3: Relationship of age, gender, educational qualification and religion of the respondents with their attitudes towards SCD and SCD premarital counseling

Variable	**Response**				
Age	Yes	%	No	%	Total
15-19	19	6.78	57	20.36	27.14
20-24	16	5.5	68	24.43	29.93
25-29	1	0.5	87	31.42	31.42
30-34	2	0.77	30	11.36	11.36
Total	38	13.55	242	86.3	99.85
$\chi2$ cal= 7.895 $\chi2$ table = 7.81, d.f = 3					
Gender	Yes	%	No	%	Total
Male	28	9.93	136	48.64	58.57
Female	10	3.49	106	37.93	41.42
Total	38	13.42	242	86.57	99.99
$\chi2$ cal= 1.52 $\chi2$ table = 3.84, d.f = 1					
Educational qualification	Yes	%	No	%	Total
Primary School	12	4.22	4	1.5	5.72
Secondary School	25	8.86	147	52.56	61.42
Post-Secondary School	1	0.36	91	32.5	32.86
Total	38	13.44	242	86.56	100
$\chi2$ cal= 22.25 $\chi2$ table = 5.99, d.f = 2					
Religion	Yes	%	No	%	Total
Christianity	24	8.5	171	61.05	69.55
Islam	14	4.93	71	25.07	30
Total	38	13.43	242	86.12	99.55
$\chi2$ cal= 0.316 $\chi2$ table = 3.84, d.f = 1					

Table 3, shows the Pearson Chi square data of the association between age, gender, educational qualification and religion on the attitudes of the respondents towards SCD and SCD premarital counseling. Both age and educational qualification had a significant association with the attitudes of the respondents towards SCD and SCD premarital counseling, while gender and religion had no significant association with SCD and SCD premarital counseling.

Table 4: Relationship of age, gender, educational qualification and religion of the respondents on practices related to SCD premarital counseling.

Variable	**Response**				
Age	Yes	%	No	%	Total
15-19	34	12.14	42	15	27.14
20-24	51	18.45	32	11.55	30
25-29	67	24.05	20	7.38	31.43
30-34	29	10.24	3	1.19	11.43
Total	183	64.88	97	35.12	100
	$\chi2$ cal= 9.912 $\chi2$ table = 7.81, d.f = 3				
Gender	Yes	%	No	%	Total
Male	99	35.36	65	23.21	58.57
Female	83	29.52	33	11.9	41.42
Total	182	64.88	98	35.11	99.99
	$\chi2$ cal= 1.26 $\chi2$ table = 3.84, d.f = 1				
Educational qualification	Yes	%	No	%	Total
Primary School	3	1.07	13	4.64	5.71
Secondary School	103	36.79	69	24.64	61.43
Post-Secondary School	76	27.03	16	5.83	32.86
Total	182	64.89	98	35.11	100
	$\chi2$ cal= 10.396 $\chi2$ table = 5.99, d.f = 2				
Religion	Yes	%	No	%	Total
Christianity	135	48.1	61	21.9	70
Islam	47	16.78	37	12.22	29
Total	182	64.88	98	34.12	99
	$\chi2$ cal= 1.069 $\chi2$ table = 3.84, d.f = 1				

Respondents' practices related to SCD and SCD premarital counseling

In this section, the respondents were accessed based on having being counselled or received any seminar on SCD, will attend any counseling section or seminar on SCD and knows his or her genotype. 64.88% of the respondents had good practices related to SCD or SCD premarital counseling. Of these, 35.36% were males while 29.52% were females. Majority of the respondents (36.79%) had secondary school education and majority of the respondents also fell within the age group of 25-29 (24.05%). 48% were Christians and 17% were Muslims. shows the association between age, gender, educational qualification and religion of the respondents on practices related to SCD and SCD premarital counseling. Neither gender nor religion had a significant association on practices related to SCD and SCD premarital counseling. However, age and educational qualification showed a significant association with practices related to SCD and SCD premarital counseling.

Discussion

The study was carried out to evaluate the knowledge, attitude and practice of youths in Yaba area of Lagos Nigeria related to SCD and SCD premarital counseling. It has been discovered that the prevalence of SCD in this part of the world where this condition is common was largely due to ignorance of the people affected and poverty [19- 21]. The study target population were unmarried youth and the mean age of the respondents' of 23± 0.25 (Mean + SEM), derived from the group data relates to the age in which most males and females begin preparing for marriage in this part of the country.

This study showed that 80% of the respondents have knowledge of SCD and SCD premarital counseling. This is quite expected as Yaba population is an urban area and not a rural area where the literacy rate is lower. This is in line with a study among students of the University of Lagos in 2007 which reported that 86%[22] of the respondents were knowledgeable of SCD and genetic counseling. Religious bodies, hospitals and non-governmental organizations in Nigeria such as Sickle Cell Hope Alive Foundation (SCHAF), Sickle Cell Awareness Foundation (SCAF), Dabma Sickle cell foundation and Sickle Cell Aid Foundation (SCAF) are some of the organizations helping to raise the level of awareness, cure and management of SCD in Nigeria. The religious bodies through their counseling sections or

seminars inform the public and most of them mandates genetic counseling before couples could be joined together. In a recent press conference by SCHAF, the organization said that it was not proper that one only gets to know about SCD when one gets married or about to get married. Therefore they proposed that the study of sickle cell disease should be included as a subject in school curriculum so that children could have knowledge of the disease at tender age[23]. This information is consistent to the finding of this studies in which there was a significant association between educational qualification of the respondents and their knowledge towards SCD. The study shows that 81% of the youths whose highest educational qualification was primary school had no knowledge of SCD and SCD premarital counseling. This further buttresses the fact that education is vital in the campaign to reduce the prevalence of SCD and this implies that the government would need to develop innovative ways such as the teaching of SCD in the curriculum of schools.

Findings from this study on the attitudes of youths in Yaba, towards SCD and SCD premarital counseling showed that age and educational qualification had a significant association with the attitude of the youths towards SCD and SCD premarital counseling, while gender and religion does not have a significant association. It will be recalled that age was not associated to the knowledge of the respondents'; however the difference in attitude could be related to the individuals who are becoming more desperate to get married or get engaged. The data showed that 50% of those with a negative attitude fell between the lowest age group of 15-19 while the remaining 50% belong to the remaining 3 groups. Also, lack of knowledge in the youths whose highest educational qualification was primary school could be the reason for the difference in their attitudes towards SCD and SCD premarital counseling. This is because knowledge usually has an influence upon negative attitude. A study conducted in a literate population of youth corps members in Lagos in 2008 showed that public health education improved both knowledge and attitude of the youth corps members on SCD and screening uptake[21.]

The general opinion of some youths who usually want to go the way of love rather than having a broken relationship is mostly tended towards their religious beliefs on miracles and destiny. Some believe that, since it is a 1 in 4 chance of having a SCD child they will rather go for just one or two children. Selective termination of pregnancy (abortion) is another aspect that might influence the attitude of the youths based on their religion, as some denominations kick against all forms of abortion. Although, Nigeria is a very religious country and it was probably expected that the religion of the respondents might influence their attitude towards SCD and SCD premarital counseling. The results showed that there was no significant association between the religion of the respondents and their attitudes and same observation was found with the gender of the youths and their attitudes towards SCD and SCD premarital counseling.

Approximately 65% of the respondents had either engaged in or were willing to engage in practices related to SCD premarital counseling including attending a seminar or counseling on SCD, among other practices. Findings from this study shows that both age and educational qualification had a significant association with the practices of the youths related to SCD premarital counseling, while neither gender nor religion had a significant association with the practices of the youths on SCD premarital counseling. In respect to the age of the youths, 55% of the age group of 15-19 had not been exposed to practices related to SCD premarital counseling. This same age group had the highest percentage of those showing lack of knowledge and negative attitudes within the age groups. This might imply that more sensitization is required to be granted to this age group. Alongside with this finding, 81% of the youths whose highest educational qualification was primary school had not been exposed to practices related to SCD premarital counseling. Therefore, more public sensitization is required to be carried out using all available resources such as the media, social media, internet, schools, churches, outreaches and seminars. This will enhance the practice of the youths on SCD premarital counseling, since 84% of the youths believe that premarital counseling will help in the reduction of the incidence of SCD.

This is an improvement compared to 64% reported in a study among students of the University of Lagos in 2007[22].

Conclusion

Youths in Yaba area of Lagos State have a good knowledge, attitude and practice towards SCD and SCD premarital counseling. Educational qualifications seemed to have a significant influence on the knowledge, attitude and practices of the respondents, and age was significantly associated with the attitude and practices related to SCD and SCD premarital counseling. It will be of great importance if attention is given to more public awareness and education to target the lower age group to sensitize them on SCD and premarital counseling before they reach the age of marriage. This effort should also be increased in the rural areas where we are most likely to find more people with only primary school education. Therefore, all stake holders such as the media, non-governmental organizations, religious bodies, hospitals, schools and community leaders should continue on their sensitization process on SCD premarital counseling by seeking for means to communicate with those with only primary school education in the language they will best understand and even to those who can't read or write. Schools and companies should include genotype test as part of their medical check for new entrants and the new entrant's status should be made known to them. Ultimately, the government should seek for means in inserting the teaching of SCD in the curriculum of schools from the elementary stage (primary schools) and provide a national programme in which every individual knows his or her genotype. This programme should be made free so as to eliminate the factor of poverty and the identification of one's own genotype should be a pre-requisite for issuing some national identity cards such as national health insurance card, and even the soon to be National identity Number (NIN).

Contributions of Authors

Both authors participated in the design, collection of data, analysis and paper write up.

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