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Original Article

Knowledge, Attitude and Perception of Traditional and Religious Leaders on Pre-Marital Screening for Sickle Cell Disease in Sokoto

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ABSTRACT

Context: Pre-marital screening has been proven to be an effective means of reducing the overall burden of genetic disorders like Sickle Cell Disease (SCD) in the general population. **Aims:** To determine the knowledge, attitude and perception of traditional and religious leaders on pre-marital screening for SCD in Sokoto, North-Western, Nigeria. **Settings and Design:** Descriptive cross-sectional study. **Methods and Material:** Pre-tested interviewer administered questionnaire was administered to 375 participants selected through multistage sampling method. Data on the knowledge, attitude and perception of premarital screening for sickle cell disease were obtained. **Statistical analysis used:** Data were analyzed with SPSS Version 20.0. $P < 0.05$ was considered significant. **Results:** The mean age ± SD of the participants was 37.0±11.6 years and the majority of respondents were male 310 (83.1%), married 247 (67.1%) and had tertiary education 179 (50.4%). Good knowledge of SCD was demonstrated by 263 (70.1%) and positive attitude was shown by 259 (69.1%) while positive perception was received from 242 (67.9%). Age, marital and educational status were significantly associated with knowledge of SCD ($p< 0.05$). Knowledge of the SCD had great influence on the participant's perception for pre-marital screening in the same way their perception influenced their attitude on pre-marital screening for SCD (p=0.01). **Conclusion:** The traditional and religious leaders in Sokoto metropolis showed good knowledge of SCD as well as positive attitude and perception on pre-marital screening for SCD. We therefore, recommend intensive public awareness programmes and implementation of pre-marital screening of SCD as well as utilisation of the community leaders as change agents to curb the menace of SCD.
Key words: Pre-marital Screening, Sickle cell disease, Religious Leaders, Traditional leaders, Sokoto.

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INTRODUCTION

Sickle Cell Disease (SCD) is inherited from parents who are carriers of the sickle haemoglobin gene and has assumed a public health significance with millions of people affected worldwide.[1-3] Pre-marital screening provides an opportunity for intending couples to know their phenotype or genotype and be aware of the risk of having children with genetic diseases like SCD and adopt rational preventive measures.[4,5] Therefore, pre marital screening will be an ideal public health approach to reduce the burden of SCD, especially in the northern part of Nigeria where shortage of manpower, inadequate facilities and ethical burden will hinder the acceptance of measures such as prenatal screening.[6] However, success of pre-marital screening for SCD and any possible benefit it might bring in curbing the menace of SCD in this part of the country would depend on its acceptance by religious and traditional leaders. This is because society looks up to them and entrusted the role of solemnizing marriages to their hands, so their understanding of the concept of pre-marital screening will influence any public health approach to prevent SCD in the society. Hence, this study seeks to determine the knowledge, attitude and perception of traditional and religious leaders on pre-marital screening for SCD in Sokoto, North-Western, Nigeria.

SUBJECTS AND METHODS

This was a descriptive cross-sectional study conducted among 375 traditional and religious leaders of both sex and aged at least 18 years within Sokoto metropolis.

The sample size was determined using a formula $n = Z^2 pq/d^2$.[7] Where n = minimum required sample size, Z = standard normal deviate at 95% confidence interval (1.96), p = prevalence of factor under study (proportion of the respondents= 42.3%), q = complimentary probability of factor under study (1- 42.3%).[1]

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Multistage sampling technique was employed to select Local Government Areas (LGA), Islamic schools, Mosques, Churches and Houses of traditional leaders as follows. Simple random sampling without replacement using balloting was conducted to select two LGA (Sokoto South and Sokoto North) out of the five LGA that formed Sokoto metropolis, the capital city of Sokoto State. Another simple random sampling without replacement was done to select 15 Islamic schools, 15 Churches, 20 Mosques and 40 Houses of traditional leaders from the selected LGA. Finally, the first 5 leaders in each of the selected institution were chosen to respond to the questionnaire. Participants with SCD and those who have or have had children with SCD were excluded.

The data was collected using pre tested interviewer administered questionnaire (Appendix I) and responses of the participants were scored and graded as follows. Each correct response was scored one mark while zero was awarded to no-response and wrong answers. In this study, overall score of <50% and ≥50% base on median score were graded as (poor and good) for knowledge and (negative and positive) for attitude and perception, respectively.[8]

Data were analyzed with Statistical Package for the Social Sciences (SPSS) version 20.0 and continuous variables were presented as mean and standard deviation while categorical variables were expressed as frequencies and percentages. Chi-square and Fisher's exact tests were used to test for association as appropriate. The level of statistical significance was set at $p< 0.05$.

Ethical clearance for the study was obtained from the Sokoto State Ministry of Health Research Ethics Committee and informed consent was also obtained from each participant.

RESULTS

The mean age of the participants was 37.0±11.6 years and the majority of them were male 310 (83.1%), married 247 (67.1%) and had tertiary education 179 (50.4%) as depicted in Tables 1 and 2.

Graded scores for knowledge of SCD, attitude and perception of pre-marital screening for SCD are shown in Table 3. Majority of traditional and religious leaders in this study had good knowledge of SCD 263 (70.1%), positive attitude 259 (69.1%) and positive perception 242 (67.9%) of pre-marital screening for SCD.

Tables 4 to 6 present associations between socio-demographic variables of the participants and their knowledge of SCD, attitude and perception on pre-marital screening of SCD. Knowledge of SCD had statistically significant association with age (χ^2= 17.8, *df* = 1, p= 0.01), marital status (χ^2= 20.9, *df*= 4, p= 0.01) and religion (χ^2= 6.8, *df*= 2, p= 0.04) as shown in Table 4. Age (χ^2= 7.7, *df*= 2, p= 0.01), educational status (χ^2= 7.3, *df*= 8, p= 0.03) and occupation (χ^2= 7.1, *df*= 4, p= 0.03) of the participants were significantly associated with attitude to pre-marital screening of SCD as depicted in Table 5 while only marital (χ^2= 12.9, *df*= 8, p= 0.02) and educational status (χ^2= 11.1, *df*= 8, p= 0.01) had significant association with perception of participants to pre-marital screening as presented in Table 6.

Table 1: Age distribution of the participants.

Age group (Years)	Frequency (N = 375)	Percentage (%)
16 - 25	71	18.9
26 - 35	81	21.6
36 - 45	136	36.3
46 - 55	57	15.2
>55	30	8.0

Table 2: Socio-demographic characteristics of the participants.

Variables	Frequency	Percentage (%)
Gender (N = 373)		
Male	310	83.1
Female	63	16.9
Tribe (N = 370)		
Hausa/Fulani	277	74.9
Igbo	53	14.3
Yoruba	28	7.6
Others	12	3.2
Marital status (N = 368)		
Married	247	67.1
Single	108	29.3
Widow/Divorced/Separated	13	3.5
Religion (N = 366)		
Islam	280	76.5
Christianity	86	23.5
Educational status (N = 355)		
No formal	75	21.1
Primary education	14	3.9
Secondary	87	24.5
Tertiary	179	50.4
Occupation (N = 313)		
Teacher/Imam	158	50.5
Traditional leaders	69	22.0
Pastors	86	27.5

Table 3: Graded score for knowledge, attitude and perception of the participants.

Variables	Frequency (N = 375)	Percentage (%)
Knowledge		
Good	263	70.1
Poor	112	29.9
Attitude		
Positive	259	69.1
Negative	116	30.9
Perception		
Positive	242	67.9
Negative	133	32.1

Good= overall score of at least 50%, poor= overall score of less than 50%, positive= overall score of at least 50%, negative= overall score of less than 50%[8]

Relationship between participants' knowledge of SCD and perception on pre-marital screening as well as perception and attitude to pre-marital screening for SCD are presented in Table 7. Participants knowledge influenced their perception (χ^2= 20.3, *df*= 2, p= 0.01) and their perception influenced their attitude (χ^2= 10.8, *df*= 2, p= 0.01) to pre-marital screening.

DISCUSSION

We reported good knowledge of SCD, positive attitude and perception on pre-marital screening for SCD among traditional and religious leaders

Table 4: Association between socio-demographic characteristics of participants and knowledge of SCD.

Variable	Poor Attitude		Good Attitude		χ^2	*df*	*P*-value
	Number (N)	Percentage (%)	Number (N)	Percentage (%)			
Age (yrs)							
<40	29	7.9	50	13.6			
≥40	75	20.4	214	58.2	17.8	1	0.01
Gender							
Male	97	26.0	213	57.1			
Female	14	3.8	49	13.1	2.1	1	0.15
Tribe							
Hausa/Fulani	86	23.2	191	51.6			
Igbo	16	4.3	37	10.0			
Yoruba	6	1.6	22	5.9			
Others	3	0.8	9	2.4	1.3	3	0.74
Marital status							
Married	86	23.4	161	43.8			
Single	16	4.3	92	25.0			
Widow	5	1.4	4	1.1			
Divorced	1	0.3	2	0.5			
Separated	1	0.3	0	0.0	20.9	4	0.01#
Religion							
Islam	102	27.3	216	58.9			
Christianity	7	1.9	41	11.2			
Others	0	0.0	1	0.3	6.8	2	0.04#
Educational status							
Non-formal	31	8.7	44	12.4			
Primary	6	1.7	8	2.3			
Secondary	31	8.7	56	15.8			
Tertiary	32	9.0	147	41.4	8.1	3	0.01
Occupation							
Teachers/Imams	48	12.8	168	44.8			
Traditional leaders	36	9.6	36	9.6			
Pastors	28	7.5	59	15.7	20.2	2	0.01

df = degree of freedom, # = Fisher's

in Sokoto, North-Western, Nigeria. Age, educational status and occupation were some of the socio-demographic variables that influenced the attitude and perception of participants on pre-marital screening for SCD in this environment.

The finding of this study on the knowledge of SCD is in contrast to the finding of similar study conducted in the Federal Capital Territory (FCT) among secondary school students where only 38.0% of participants know the cause of SCD.[4] However, this finding is in agreement with that of two independent studies by Adewuyi and Durosinmi *et al.*[9,10] In the former 60% of new graduates of the Nigerian tertiary institution knew that SCD was inherited exclusively from both parents while in the latter 69.5% of the well informed Nigerian adults appreciate the role of both parents in the transmission of SCD.[9,10] The difference between our study and FCT study could be attributed to disparity in age and education of the two groups of participants since older age and higher education of participants in our study may accord them with an opportunity to understand life better than secondary school students. This can be further buttressed by our findings of significant association between knowledge of SCD with age, educational and marital status of the participants as well as similarity of knowledge demonstrated by participants in the studies by Adewuyi and Durosinmi *et al.* who were much older than participants of the FCT study.[4,9,10]

Although, the majority of the participants in this study never attended any counselling or seminar on SCD, most of them believe that pre-marital screening for SCD is important and should be made a precondition for any marriage. They also call for enactment of legislations to ensure pre-marital screening and possibly ban marriage between intending couples at risk of giving birth to children with SCD. The finding with respect to attitude and perception of the participants in our study is in keeping with the finding of similar study among nursing students in Sokoto where 57.6% believe government should prohibit marriage between couples at risk of having children with SCD.[1] In another study conducted at the FCT, 80% of the participants agreed that pre-marital genetic screening is necessary.[11] Despite the potential reduction in the burden of SCD that could be achieved if pre-marital screening is widely embrace, we are not in support of such laws because of their tendencies to inflict discrimination on peoples with sickle cell traits.

Descriptive nature of our study has limited its ability to assess the role pre-marital screening can play in reducing the burden of SCD in Sokoto metropolis. However, with increase public awareness and participation in pre-marital screening, further studies to assess that will be advocated

Table 5: Association between socio-demographic characteristics of participants and their attitude to pre-marital screening of SCD.

Variable	Poor Attitude		Good Attitude		χ^2	*df*	*P*-value
	Number (N)	Percentage (%)	Number (N)	Percentage (%)			
Age (yrs)							
<40	42	11.4	96	26.1			
≥40	64	17.4	153	41.6	7.7	2	0.01
Gender							
Male	90	24.1	210	56.3			
Female	18	4.8	41	11.0	1.1	2	0.31
Tribe							
Hausa/Fulani	86	23.2	183	49.5			
Igbo	14	3.8	38	10.3			
Yoruba	5	1.4	21	5.7			
Others	3	0.8	7	1.9	1.1	6	0.79
Marital status							
Married	67	18.2	173	47.0			
Single	32	8.7	70	19.0			
Widow	4	1.1	4	1.1			
Divorced	1	0.3	2	0.5			
Separated	1	0.3	0	0.0	9.8	8	0.03#
Religion							
Islam	101	27.5	205	55.9			
Christianity	6	1.6	40	10.9			
Others	0	0.0	1	0.3	5.0	4	0.08#
Educational status							
Non-formal	27	7.6	47	11.3			
Primary	6	1.7	8	2.3			
Secondary	23	6.5	61	17.2			
Tertiary	42	11.8	127	35.8	7.3	8	0.03
Occupation							
Teachers/Imams	73	19.5	131	34.9			
Traditional leaders	15	4.0	57	15.2			
Pastors	21	5.6	64	17.1	7.1	4	0.03

df = degree of freedom, # = Fisher's

Table 6: Association between socio-demographic characteristics of participants and their perception on pre-marital screening of SCD.

Variable	Poor Perception		Good Perception		χ^2	*df*	*P*-value
	Number (N)	Percentage (%)	Number (N)	Percentage (%)			
Age (yrs)							
<40	42	11.4	76	20.7			
≥40	63	17.1	155	42.1	10.2	2	0.01
Gender							
Male	89	23.9	191	51.2			
Female	16	4.3	43	11.5	1.2	2	0.55
Tribe							
Hausa/Fulani	79	21.4	178	48.1			
Igbo	15	4.1	28	7.6			
Yoruba	7	1.9	18	4.9			
Others	2	0.5	9	2.4	5.4	6	0.20
Marital status							
Married	68	18.5	150	40.8			
Single	29	7.9	76	20.7			
Widow	2	0.5	6	1.6			
Divorced	2	0.5	1	0.3			
Separated	1	0.3	0	0.0	12.9	8	0.02#
Religion							
Islam	90	24.5	203	55.3			
Christianity	11	3.0	30	8.2			
Others	1	0.3	0	0.0	5.2	4	0.27#
Educational status							
Non-formal	29	8.2	39	11.0			
Primary	4	1.1	8	2.3			
Secondary	24	6.8	53	14.9			
Tertiary	41	11.5	126	35.5	11.1	8	0.01
Occupation							
Teachers/Imams	63	16.8	141	37.6			
Traditional leaders	17	4.5	46	12.3			
Pastors	26	6.9	47	12.5	7.1	4	0.07

df = degree of freedom, # = Fisher's

Table 7: Relationship knowledge and perception as well as attitude and perception.

Variable	Negative perception		Positive perception		χ^2	*df*	*P*-value
	Number (N)	Percentage (%)	Number (N)	Percentage (%)			
Knowledge							
Poor	61	16.3	51	13.6			
Good	45	12.0	183	48.8	20.3	2	0.01
Attitude							
Negative	58	3.2	19	5.1			
Positive	12	15.5	169	45.1	10.8	2	0.01

df = degree of freedom

In conclusion, the traditional and religious leaders in Sokoto metropolis have good knowledge of SCD, positive attitude and perception on pre-marital screening for SCD. We therefore, recommend public health approach to key in to this goodwill provided by the knowledge, attitude and perception of community leaders and implement pre-marital screening of SCD at all levels of the society.

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Nil.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

FCT: Federal Capital Territory, **LGA:** Local Government Area, **SCD:** Siclkle Cell Desease; **SPSS:** Satistical Package for the Social Sciences.

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