EFFECT OF HEALTH COMMUNICATION INTERVENTION ON KNOWLEDGE OF SICKLE CELL DISEASE AMONG CHRISTIAN YOUTHS IN SELECTED TOWNS OF DELTA STATE, NIGERIA

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ABSTRACT

Sickle cell disease has been identified as a problem of public health importance by the World Health Organization. The prevalence of the disease in African has left the continent grappling with the problems associated with the disease condition. Therefore, this study assessed the effect of three health communication interventions on knowledge of sickle cell disease among Christian youths in selected towns of Delta State, Nigeria. The study utilized three groups pre test post test quasi-experimental design. The multi-stage sampling technique was used to select 123 unmarried youths. Data were collected using a questionnaire for the pre and post interventions. Three research hypotheses were tested using inferential statistics of T-test tested at 0.05 level of significance. The results indicated that there are significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention of health talk (mean difference = 26.3, $t_{(54)}$ = 7.27, p = .000), health messages using flyers (mean difference = 14.19, $t_{(60)}$ = 3.89, p = .007), and a combination of health talk and health messages using flyers (mean difference = 28.9, $t_{(48)}$ = 11.09, p = .000). The results showed that all the three health communication interventions were good but the combination of health talk and the use of flyers was more effective than the isolated intervention of health talk and the use of flyers.
Based on the outcome of the study and considering the impact of the intervention on the knowledge, the study concluded that sickle cell diseases communication interventions could be employed to check the prevalence of the disease. It is therefore recommended that government should add sickle cell disease education to secondary school curriculum. This will help to educate the youths on sickle cell disease at early age.

Keywords: Christian youths, communication interventions, sickle cell disease

INTRODUCTION

Health communication intervention for the purpose of informing and educating people particularly unmarried young persons in Nigeria about Sickle Cell Disease(SCD) has become imperative following the prevalence of the disease in the country. Primary prevention of the disease by way of information and education of the public on one hand, has been identified as the best and most cost-effective strategy to reducing the burden of the disease in Nigeria. On the other hand, poor education has led a lot of individuals into making wrong decisions of partners in their marriage and reproductive life (Ebele, Olusola, Benjamin, Ayobami,

Akisegun, Adedoyin & Abdulhafeez, 2017). The consequence of the wrong decisions, may not be far from the prevalence of SCD in the country.

Sickle cell disease has been identified as a problem of public health importance by the World Health Organization. The prevalence of the disease in African has left the continent grappling with the problems associated with the disease condition (Elizabeth, Donald, Smruti, Kathleen, Mei, Daies & Igor, 2018). According to Aziza and Noah (2019) sickle cell disease (SCD) condition is an avoidable but irreversible genetic disorder whereby the red blood cell is stiffened giving it a sickle shape which does not allow free flow of oxygenated blood in the blood vessel. This disorder, results in inadequate blood supply to cells and tissues in the body. The condition causes   pains and other complications and eventually leads to death in most cases particularly among infants and children.

Research findings have equally shown that there are no adequate medical facilities or sustainable health policies and programmes designed to check the prevalence of the disease as well as ensure the survival of SCD patients in sub-Sahara Africa including Nigeria (Denis-Antwi, Dyson & Ohene-Fremponsm, 2008). The carrier rate in Nigeria is put at 20% to 30%, and 2% to 3% cases (Adewoyin, Alagbe, Adedokun & Idubor, 2015)

Studies have shown that religion and culture have impaired the level of knowledge of the disease among youths as different cultures with multiple religious' beliefs in Nigeria share various views about SCD (Agoha et al, 2015). Some persons believe the disease is caused by evil spirits and some believe that by faith coupled with prayer they can go ahead to marry a carrier even when they are carriers as well (Ugwu, 2016) There are some other misconceptions about the disease as a result of lack of awareness and knowledge. In extreme cases, some persons are ignorant of the disease (Ajilore, Onyenankeya, Morka, Akoja, Akintayo & Ojomo, 2018). As a result of Christian teaching on restriction on close relationship among youth of opposite sex, some are already in a relationship and sexual engagement not to talk of children bearing and the peculiarity of SCD.

Studies have shown that some youths including young Christians are ignorant of the disease. Some are not knowledgeable enough and some have poor attitude towards the disease. A study by Ajilore et al (2018), to determine the awareness level of participants in operation know your genotype media advocacy campaign on SCD in Delta State, Nigeria shows that a significant percentage of the study participants believe that someone with AS genotype can marry another person with AS genotype. In the same study, a significant number equally believe that genetically incompatible couple will give birth to SCD free children. The result of this study is an indication that some youths in Delta State are ignorant of the disease. Out rightly, some of the respondents in the study do not know their genotype which is a call for a knowledge base intervention with a view to broaden people's knowledge of the disease. Further research findings have revealed that some people are aware of the disease but majority do not have adequate knowledge of it to form the needed positive attitude towards it (Ugwu, 2016).

In an effort to curtail the prevalence of the disease, Delta State which is one of the states in Nigeria, inaugurated a Variant Newborn Sickle Cell Disorder Screening Machine at the state's Sickle Cell Referral Centre in Asaba. This single effort by Delta State Government is quite laudable but grossly inadequate to meet the overwhelming challenge of the disease in

the country (The Pointer Newspaper, 2020). Good as this effort may be, communication intervention with a view to increase the knowledge base of the young people of marriageable age about sickle cell disease may help to check against the prevalence of the disease.

The following hypotheses were tested in this study:

H1: There will be no significant difference in the level of knowledge of SCD among Christian youths at pre and post-intervention of health talk

H2; There will be no significant difference in the level of knowledge of SCD among Christian youths at pre and post-intervention of health messages using flyers

H3: There will be no significant difference in the level of knowledge of SCD among Christian youths at pre-and post-intervention of health talk.

H4: There will be no significant difference in the level of knowledge of SCD among Christian youths at pre and post-intervention of a combination of health talk and health messages using flyers

METHODS

Research design: This study utilized three groups pre test post test quasi-experimental design to assess the effect of health talk, health message flyers, a combination of health talk and health message on the genetic premarital decisions of youths to prevent sickle cell disease.

Population: The study population consisted of 1881 unmarried youths within the ages of 16-29 selected from three local government areas of Delta State, Most (62.6%) of the participant were 16-20years, with the mean age of 20.3 (SD = 7.11).

Sample Size and Sampling Technique: One hundred and twenty three (123) unmarried Christian youths were sampled for this study, using the Katz, Elmore, Wild and Lucan (2014) sample size determination method. This included 42 youths from Agbor, 39 youths from Asaba, and 42 youths from Ogwashi-Uku in Delta State, Nigeria. The multi-stage sampling technique was used through three stages. The first stage was to determine the senatorial districts for the study among the three senatorial districts in the State. Delta North Senatorial district was purposively selected. This is because previous study carried out within the senatorial district revealed poor knowledge of sickle cell disease among youths (Ajilore et al., 2018). At the second stage, four communities, including Agbor in Ika South Local Government area, Asaba in Oshimili south local government area, and Ogwashi-Uku in Aniocha South Local Government area were selected as the communities are within Delta North Senatorial District. At the third stage, the treatment to be given to each group was purposively determined taking into cognizance the nearness of the resource persons to the location of the study and accessibility to the respondents bearing in mind the restriction of movement due to the COVID 19 pandemic.

Instrumentation: The research instrument for the study was a structured questionnaire which was adopted from Ajilore et al. (2018) and modified by the researchers. The

modification was done to remove all items that were culturally biased and may infringe on the right of the respondents. The instrument had two sections: Section A elicited responses for demographic data and Section B had 15 items and was used to elicit data to measure participants' knowledge level of sickle cell disease on a five point Likert scale of VHE: Very High Extent =4, HE: High Extent =3, LE: Low Extent = 2, VLE: Very Low Extent. = 1 and Not at All = 0. Knowledge as a variable was measured as either high (mean score between 41.0 & 60.0), moderate (mean score between 21.0 & 40.0) or low (mean score between 1.0 & 20.0).

Validity and Reliability of the Research Instrument: the instrument was validated on face, content and constructs validity.A pre-test of the instrument was conducted by administering 20 copies of the research instrument to 20 randomly selected youths that were not part of the study but shared similar inclusion criteria as not being married and between the ages of 16 and 30 years of age. The data from the pre-test were analyzed using reliability coefficient test. The Cronbach's Alpha results revealed 0.894 for knowledge of sickle cell disease, 0.847 for attitude towards sickle cell disease and 0.851 for genotype premarital decisions.

Data Collection Procedure: The researchers administered the research instrument in two phases to participants who gave their consents.

Procedure was carried out in three stages as follows:

(a) **Pre treatment stage** involved a familiarization visit to the three selected communities, which focused on general introduction, establishment of rapport as well as the administration of the questionnaire to participants. A simple random sampling procedure was used to select 45 participants from each community. After the selection process, participants were briefed on the objective of the study and the benefits therein. The knowledge of sickle cell disease scale was administered to participants.

(b) **The treatment Session:** The participants in the experimental groups were subjected to seven (7) weeks of treatment programmes. The subjects in experimental group A were subjected to health talk, group B on were exposed to the use of flyers while that of group C were treated with both health talk and use of flyers. Each of the three experiment groups had seven session of the therapy. Each session took 45 minutes.

(c) **Post-treatment Session:** This is the evaluation stage. At this phase, a post test was carried out at the seventh week of the study across the three experimental groups to gather data with the same instrument used to gather the base line data in first schedule during the first week. This was for analysis to determine the effect of the communication interventions on sickle cell diseases among the study participants.

Method of Data Analysis: Descriptive analysis of frequency counts, percentage, mean, and standard deviation, and t-test were used.

Ethical Consideration: Ethical approval for this study was obtained from Babcock University Health Research Ethics Committee (BUHREC).

RESULTS

Table 1: The Level of Knowledge of SCD among Christian Youths Using Health Talk

The Level of Knowledge of Sickle Cell Disease	Category of Scores	Pre-intervention of Health Talk		Post-Intervention of Health Talk	
		F	%	F	%
Below Average	1-20	4	14.3	-	-
Average	21-40	20	71.4	10	35.7
Above Average	41-60	4	14.3	18	64.3
Total		28	100.0	28	100.0
Mean ± SD (%)		27.56±8.33(45.9%)		53.81±6.89(89.7%)	
Mean Difference		26.25			
Maximum Score		45.0		60.0	
Minimum Score		20.0		48.0	

Table 1 presents the pre and post intervention knowledge of sickle cell disease among Christian youths in Delta State, Nigeria at pre and post-intervention of health talk. At the pre intervention stage, four (14.3%) participants had below average score, 20 (71.4%) and 4 (14.3%) had knowledge mean scores at average and above average respectively on the sickle cell disease. At the post-intervention stage, 10 (35.7%) participants had knowledge score on the average while 18 (64.3%) participants had above average knowledge score. The Mean ± SD (%) knowledge of participants from the effect of sickle cell disease communication intervention among Christian youths at pre-intervention was 27.56 ±8.33 (45.9%) and 53.81 ±6.89 (89.7%) at the post-intervention of health talk with a mean difference of 26.25.

Table 2: Student's t-testshowing the Significant Difference in The Pre and Post Intervention Knowledge Mean Scores of Participants Exposed to Health Talk Alone

	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Mean Diff	P Value
Pre-Inter.	28	27.56	8.33	.50				
Post-Inter.	28	53.81	6.89	.39	54	7.27	26.3	.000

Table 2 presents the result of hypothesis one postulated in this study. It is indicated that there is a significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention of health talk (mean difference = 26.3, $t_{(54)}$ = 7.27, p = .000). Based on this, the earlier set hypothesis cannot be accepted. Therefore, there is a significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention of health talk. Therefore, the difference observed in the post intervention knowledge mean scores of participants exposed to health talk alone in the pre

and post intervention stage could not have happened by chance but due to the communication intervention the participants were exposed to.

Table 3: The Level of Knowledge of SCD among Christian Youths Using Flyers

The Level of Knowledge of Sickle Cell Diseases	Category of Scores	Pre Intervention Using Flyers		Post Intervention Using Flyers	
		F	**%**	**F**	**%**
Below Average	1-20	13	41.9	7	22.6
Average	21-40	12	38.7	10	32.2
Above Average	41-60	6	19.4	14	45.2
Total		31	100.0	31	100.0
Mean ± SD (%)		24.09 ±6.45 (40.2%)		38.28 ±4.76 (63.8%)	
Mean Difference		14.19			
Maximum Score		50.0		55.0	
Minimum Score		17.0		17.0	

Table 3 presents the pre and post-intervention knowledge of sickle cell disease among Christian youths in Delta State, Nigeria at pre and post-intervention of the use of flyers. At the pre intervention stage, 13 (41.9%) participants had below average score, 12 (38.7%) and 6 (19.4%) had knowledge mean score at average and above average respectively of sickle cell disease. At the post intervention stage, 7 (22.6%) participants had knowledge score below average, 10 (32.2%) and 14 (45.2%) participants had average and above average knowledge score respectively. The Mean ± SD (%) knowledge of participants on the effect of sickle cell disease among Christian youths at pre-intervention was 24.09 ±6.45 (40.2%) and 38.28±4.76 (63.8%) at the post-intervention using flyers with a mean difference of 14.19.

Table 4: Student's t-testshowing the Significant Difference in the Pre and Post Intervention Knowledge Mean Scores of Participants Exposed to Health Messages Using Flyers

	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Mean Diff	P Value
Pre-Inter.	31	24.09	6.45	.27				
Post-Inter.	31	38.28	4.76	.31	60	3.89	14.19	.007

Table 4 presents the result of hypothesis two postulated in this study. It is indicated that there is a significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention of health messages using flyers (mean difference = 14.19, $t_{(60)}$ = 3.89, p = .007). Based on this, the earlier set hypothesis cannot be accepted. Therefore, the difference observed in the post-intervention knowledge mean scores of participants exposed to health messages using flyers alone in the pre and post-intervention stage could not have happened by chance but due to the communication intervention the participants were exposed to.

Table 5: Level of Knowledge of SCD among Christian Youths Using a Combination of Health Talk and Flyers.

The Level of Knowledge of Sickle Cell Diseases	Category of Scores	Pre-Intervention Using A Combination of Health Talk and Flyers		Post-Intervention Using A Combination of Health Talk and Flyers	
		F	%	F	%
Below Average	1-20	8	32.0	-	-
Average	21-40	11	44.0	4	16.0
Above Average	41-60	6	24.0	21	84.0
Total		25	100.0	25	100.0
Mean ± SD (%)		25.88 ±7.87 (43.1%)		54.78 ±6.89 (91.3%)	
Mean Difference		28.9			
Maximum Score		43.0		60.0	
Minimum Score		19.0		33.0	

Table 5 presents the pre and post-intervention knowledge of sickle cell disease among Christian youths in Delta State, Nigeria at pre and post=intervention using a combination of health talk and use of flyers. At the pre-intervention stage, 8 (32%) participants had below average score, 11 (44%) and 6 (24%) had average and above average knowledge of the sickle cell disease respectively. At the post intervention stage, 4 (16%) participants had an average knowledge while the remaining 21 (84%) participants had above average knowledge score. The Mean ± SD (%) knowledge of participants on the effect of sickle cell disease communication intervention among Christian youths at pre-intervention was 25.88±7.87 (43.1%) and 54.78±6.89 (91.3%) at the post-intervention using a combination of health talk and use of flyers with a mean difference of 28.9.

Table 6: Student's t-test showing the Significant Difference in the Pre and Post Intervention Knowledge Mean Scores of Participants Exposed to a Combination of Health Talk and Health Messages Using Flyers

	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Mean Diff	P Value
Pre-Inter.	25	25.88	7.87	.58				
Post-Inter.	25	54.78	6.89	1.07	48	11.09	28.9	.000

Table 6 presents the result of hypothesis three postulated in this study. It is indicated that there is a significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention of a combination of health talk and health messages using flyers (mean difference = 28.9, $t_{(48)}$ = 11.09, p = .000). Based on this, the earlier set hypothesis cannot be accepted. Therefore, there is a significant difference in the level of knowledge of sickle cell disease among Christian youths at pre and post-intervention

of a combination of health talk and health messages using flyers. Therefore, the difference observed in the post intervention mean scores of participants exposed to a combination of health talk and health messages using flyers in the pre and post intervention stage could not have happened by chance but due to the communication intervention the participants were exposed to.

DISCUSSION

The outcome of the hypotheses indicate that there is a significant difference in the level of knowledge of sickle cell disease among participants at pre-and post-intervention of health talk; health messages using flyers; and a combination of health talk and health messages using flyers. This result indicates that the intervention helped to increase the participant's knowledge of SCD. This result is an improvement on the study carried out by Ugwu (2016) on SCD Awareness, Knowledge and Attitude among Undergraduates of a Nigeria Tertiary Educational Institution – Ebonyi State University, Abakaliki, Ebonyi State, South-Eastern Nigeria. From her study, it was discovered that majority of the study participants lack adequate knowledge of sickle cell disease. Against her finding this study has established the fact that an effective intervention has the likelihood to improve the knowledge of people on SCD. Taking the channels of SCDintervention beyond the mass media, Ajilore, Onyenankaya, Morka, Akoja, Akintayo and Ojomo, (2018), revealed that school teachers, church and Islamic marriage committees, parents, and counsellors and not the media are the primary sources of information about sickle cell.

This finding encourages the use of interpersonal and group communication by way of engaging counsellors in work places, schools and religious gathering as interventionist to disseminate the message of genotype compatibility among youths. Identifying possible individual and private intervention as a strategy to combat the prevalence of sickle cell disease, the World Health Organization (WHO) among other things recommended counselling as a strategy to check the spread of the disease (Ebele, Olusla, Benjamin, Ayobami, Akisegun, Adedoyin & Abdulhafeez, 2017).

CONCLUSION

Based on the outcome of the study, it can be concluded that the intervention imparted positively on participants' knowledge of sickle cell disease and capable of enhancing the knowledge of sickle cell disease among the youths. Considering the impact of the intervention on the knowledge, the study can generally conclude that sickle cell diseases communication intervention could be employed to check the prevalence of the disease that is endemic in Nigeria and possible reduce the rate of morbidity and mortality among children in Nigeria. Flowing from the findings of this study, the following recommendations are made.

1. Health care providers should adapt a combination of health take and the use of flyer as communication tools in SCD communication interventions targeted at youths.
2. Health talk alone can equally be used in local language where the audience are not literate
3. Health communication strategists should consider using face to face or group communication strategy in reaching target audience in SCD campaigns.

4. Platforms such as religious institution should be used to assess young people with a view to educate them on SCD

   As a way of providing a defined platform for early counseling of children on SCD, government should add sickle cell disease education to secondary school curriculum. This will help to educate the youths on sickle cell disease at early age.

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