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Assessing Suicidal Behavior among Sickle Cell Disease Patients at Usmanu Danfodiyo University Teaching Hospital, Sokoto, Northwestern Nigeria

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ABSTRACT

BACKGROUND: Chronic medical conditions like Sickle cell disease (SCD), the most common inherited hematological condition, are associated with a significantly higher risk of suicidal behavior or suicidality due to multiple factors such as chronic pain, depressive disorders, and hopelessness. In Nigeria, where SCD is highly prevalent, economic hardships further exacerbate challenges like limited access to medications, increasing vulnerability to suicidality.

AIM: To determine the suicidal behavior among sickle cell disease Patients at Usmanu Danfodiyo University Teaching Hospital, Sokoto, Northwestern Nigeria

MATERIALS AND METHODS: This cross-sectional study enrolled 84 respondents over six months using a consecutive sampling technique. Data on respondents ' features were collected using researcher-developed instruments, while suicidality was measured with the Suicide Behaviors Questionnaire-Revised (SBQ-R). Statistical analyses were performed using IBM SPSS Statistics version 25 (iOS, Version 25.0, Armonk, NY: IBM Corp).

RESULTS: The mean suicidality score was 3.4 (SD ± 1.4). All the respondents exhibited some level of suicidality, with more than 90% having a low risk, while approximately 10% showed a moderate risk. Respondents with moderate social support had a significantly higher prevalence of suicidality compared to those with high social support.

CONCLUSION: Suicidal risk is prevalent among patients with sickle cell disease and may be influenced by certain sociodemographic factors, notably reduced social support.

Keywords: Sickle cell disease, Suicide, Suicidality,

INTRODUCTION

Chronic diseases exemplified by sickle cell disease, are associated with a significantly high risk of suicidal behavior, estimated to be 2 to 3 times higher than that observed in the general population (1). Sickle cell disease (SCD), the most prevalent hereditary hematological disorder with significant global

public health implications, is a complex multisystem condition caused by a genetic mutation that results in rigid, sickle-shaped erythrocytes and arises from the interplay between chronic inflammation, hemolysis, and systemic vascular injury (2, 3). Suicide is simply a purposeful action undertaken with the intention to die, carried out with the knowledge or expectation of a fatal outcome (4). Suicide is a major global health concern and ranks 15th among leading causes of motility as well as the 19th in terms of the global disease burden (GBD), responsible for 1.4% of all fatalities globally (5). Suicide resulted to over 800,000 deaths annually, surpassing modalities from war, HIV/AIDS, breast cancer, malaria, and homicide, with rates expected to remain stable through 2030 (6-8). About a million people die by suicide annually, with 80% of these modalities occurring in developing countries, and Nigeria's suicide rate of 17.3 per 100,000 exceeds both the global and African averages(9).

SCD individuals are susceptible to suicidal ideation and attempts, determined by multifactorial elements. Notably, those diagnosed depressive disorder exhibit a substantial prevalence of suicidal ideation, with 42.6% reporting at least one episode, and 8% reporting a history of suicide attempts (10). Apart from depressive disorder, other factors identified include chronic pain ,the chronic nature of the illness itself, hopelessness, low hemoglobin levels and diminished resilience (1, 11). Other factors that could contribute to increased suicidality include multiple comorbidities and complications such as, but not limited to, aplastic crisis, priapism, jaundice, delayed physical development, seizures, hemiplegia, congestive heart failure, cholelithiasis, pyelonephritis, renal failure, osteomyelitis, and bone infarctions (12). This research is paramount because SCD is highly prevalent in Nigeria. With the current harsh economic realities, persons with SCD face multiple challenges, including difficulties in accessing medications. These challenges, increase their vulnerability to feelings of hopelessness and suicidality.

METHODS

This was a cross-sectional study involving a total of 84 respondents. Their socio-demographic and clinical variables were collected using questionnaire designed by the researches based on previous studies. Suicidality was measured using the Suicide Behaviors Questionnaire-Revised (SBQ-R). Inclusion criteria required respondents aged ≥18 years to provide written informed consent. For respondents <18 years, assent was obtained together with parental or guardian consent. Exclusion criteria encompassed participants who were critically ill or refused consent. Ethical approval was obtained from the Research and Ethics Review Committee of Usmanu Danfodiyo University Teaching Hospital, Sokoto.

Data analyses were conducted using IBM SPSS Statistics version 20 (iOS, Version 20.0, Armonk, NY: IBM Corp). Univariate analyses involved the summarization of the categorical variables using frequencies, proportions, and bar charts, while continuous variables were summarized using measures of central tendency (mean) and variability (standard deviation). Bivariate analyses were conducted to evaluate associations between variables using chi-square tests, with statistical significance defined at $p < 0.05$.

The Suicide Behavior Questionnaire-Revised (SBQ-R)

The Suicide Behaviors Questionnaire-Revised (SBQ-R) is an instrument for assessing the risk of suicidal behavior and it assesses a person's history of suicidal thoughts and attempts, how often they have experienced such thoughts in the last 12 months, the severity of any past attempts, and their perceived likelihood of engaging in suicidal behavior in the future(13)**.** It scoring ranges from 3 to 18, with higher scores denoting increased risk: scores of 11 or above denote high risk, while 7 to 10 signify moderate risk, and 6 or below represents low risk. A cutoff score of 7 signifies at-risk individuals in the general population and 8 among psychiatric inpatients. It has good accuracy, reliability, and usefulness in both clinical and research settings (14).

RESULTS

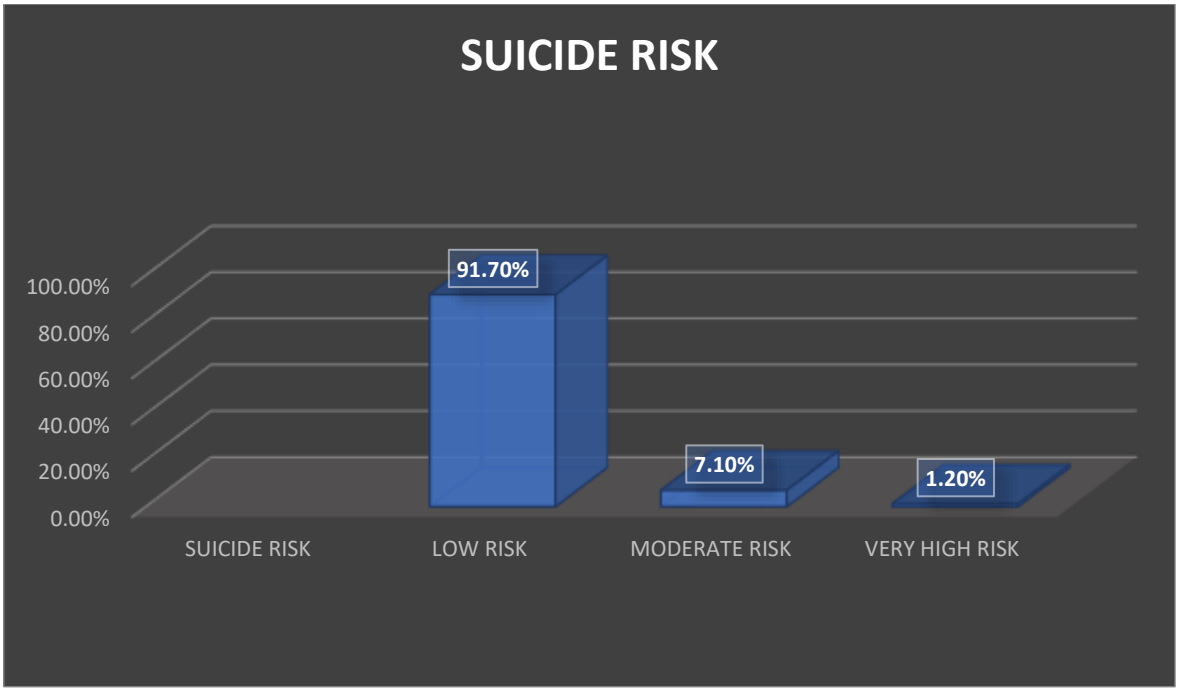

Figure 1: Severity of suicide risk

From Figure 1 about one in ten had a moderate risk of suicidality.

Factors associated with suicidality among the participants

From Table 1 below, Participants with moderate social support (17.2%) exhibited a higher prevalence of suicidality compared to those with high social support (3.6%). This association was statistically significant ($\chi^2 = 4.601$, $p = 0.045$). Respondents with higher level of education experienced more suicidality (10,9%) than those with lower level of education (5.3%), but the difference was not statistically significant. (*p*-value=0.449). All other variables do not achieve statistical significance, as shown in Table 2 below

Table 1: Factors associated with suicidality among the participants

Variable	Suicidality 3.4 (SD±1.4)		X^2	Df	*P*-value
	Low risk	High risk			
Age Category					
≤26	88.7%	11.3%	*		0.474
27-36	100.0%	0.0%			
≥37	100.0%	0.0%			
Gender					
Male	90.2%	9.8%	0.212	1	0.710
Female	93.0%	7.0%			
Employment Status					
Unemployed	100.0%	0.0%	2.232	2	0.489
Employed	100.0%	0.0%			
Student	89.2%	10.8%			
Marital status					
Single	89.9%	10.1%	1.660	1	0.342

Married	100.0%	0.0%			
Religion					
Islam	92.8%	7.2%	11.133	1	0.083
Christian	0.0%	100.0%			
Social support					
Moderate	82.8%	17.2%	4.601	1	**0.045**
Good	96.4%	3.6%			
Level of education					
Secondary and below	94.7%	5.3%	*		0.449
Tertiary	89.1%	10.9%			
Comorbidity					
Yes	91.2%	8.8%	*		1.000
No	92.0%	8.0%			
Compliance					
Yes	94.4%	5.6%	*		0.057
No	75.0%	25.0%			
Genotype					
HbSS	92.2%	7.8%	*		1.000
HbSC	85.7%	14.3%			
Suicidality					
Low risk	90.7%	9.3%	0.108	1	1.000
High risk	92.7%	7.3%			

p<0.05. *Fisher's Exact

DISCUSSION

All participants in the current study exhibited some level of suicidality, although the majority demonstrated low severity. This aligns with findings from a study conducted in Central Africa, which reported a high prevalence of suicidality among individuals with sickle cell disease (15). A much lower prevalence was found in Benin by Aza-Gnandji, who assessed suicidal risk using the Ducher Suicide Risk Self-Assessment Scale and reported that suicidal risk was positive in 44.62% of the SCD respondents.(1)

Index study found that moderate social support was associated with suicidality. This finding is consistent with study conducted by Christian Eyoun in Cameroon, which found a lack of family support as a significant factor related to suicidality (15). Finding Low level of social support to be associated with increased suicidality among SCD is unsurprising, as the frequent crises—characterized by severe vaso-occlusive painful episodes and systemic complications necessitating medical care increases the demand for social support systems, which is paramount in chronic disease management by encouraging adaptive coping strategies, limiting psychological distress, and improving overall quality of life (16).

CONCLUSION

Suicidality is a common phenomenon among people living with SCD; all the participants in the study had some level of suicide risk. However, most individuals have a lower risk. SCD individuals with low levels of social support demonstrated a heightened propensity for suicidality, but other socio-demographic factors showed no significant differences with suicidality.

This study has some limitations and serves only as a foundation for further research. Some of these limitations include the fact that vaso-occlusive crisis, which is the most common complication of sickle cell disease, was not taken into consideration. Additionally, this study did not follow up with patients to assess the outcomes of those with high suicidality compared to those with low suicidality. Longitudinal studies may be needed to follow patients over

time to evaluate how suicidality impacts their lives. Furthermore, future studies should extend to the community to assess the actual prevalence of suicidality, as the current study was restricted to stable patients attending routine follow-up care

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Conflict of interest

The authors did not declare any conflicts of interest.

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