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Original Article

Knowledge and Attitude regarding Sickle-cell disease among Higher Secondary Students, Nepal

Abstract:

Introduction: Sickle-cell Disease (SCD) is a group of inherited red blood disorders. It is thought to be prevalent by sickle cell disease among Tharus residing in the Western Terai part of Nepal.

Objectives: The study is to determine the knowledge and attitude on Sickle-cell disease among selected higher secondary school students in Banke District, Nepal.

Methods and Materials: A cross-sectional descriptive study was conducted involving 290 higher secondary students within Banke District who were selected by multistage cluster sampling technique. The self-administered structured questionnaire was used for data collection. Data were analysed by using descriptive and inferential statistics on SPSS version 20.

Results: A total of 290 students were included where around two third (60.7%) of respondents were age group between 15-17 years and remaining 39.3% were between age group of 18-20 years. More than half (56.9%) were male and one fourth (25.9%) were from Tharu community. Maximum percentages (46.2%) had average knowledge regarding Sickle-cell disease and around one third (35.9%) respondents had low knowledge with mean knowledge of 8.44±3.88 standard deviation. Likewise, near to half (48.6%) respondents had negative attitude and just above the half (51.4%) respondents had positive attitude towards Sickle-cell disease. There was significant association between knowldege and attitude of respondents regarding Sickle-cell disease.

Conclusion: The knowledge of sickle-cell disease among maximum respondents was average. The attitude towards sickle-cell was positive among just more than half respondents. There was significant correlation between knowledge and attitude So, it is concluded that there is a need of awareness programme to increase the knowledge level among respondents to develop positive attitude towards sickle-cell disease.

Key Words: Knowledge, Attitude, Sickle-cell Disease, Sickle-cell Trait, Higher Secondary Students

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Introduction

Sickle cell disease (SCD) is a group of inherited red blood cell disorders. Healthy red blood cells are round and they move through small blood vessels carrying oxygen to all parts of the body. In SCD, the red blood cells become hard and sticky and look like a C-shaped farm tool called a “sickle”. Sickle cells die early, which causes a constant shortage of red blood cells. Sickle cells can get stuck in small blood vessels and block the flow of blood and oxygen to organs in the body. These blockages cause repeated episodes of severe pain, organ

damage, serious infections, or even stroke.[1]

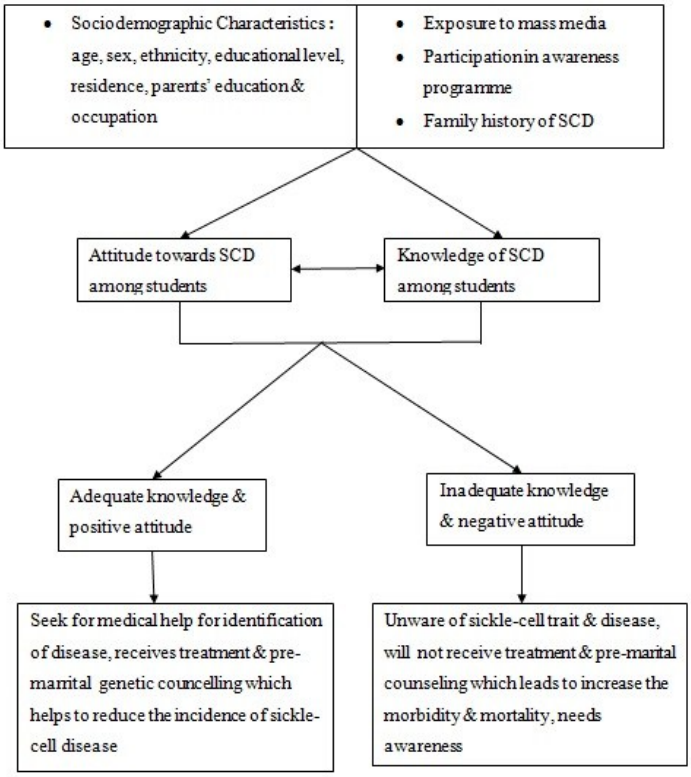
Approximately 5% of the world's population are healthy carriers of a gene for sickle-cell disease or thalassemia. Sickle cell anemia, though a common medical problem in Africa and many other parts of the world, is a rare hematological problem in Nepal and described only in the forms of case reports.[2]

According to Adhikari et. al.[3] there were no cases of sickle cell disease reported from Nepal till the time and they reported two cases of sickle cell disease in Tharu ethnicity which emphasized the fact that sickle cell disorders are invariably occurring in Nepal (especially in Terai region & in Tharu ethnicity) and they can be easily screened by very simple sickle test.

The main objective of this study was to assess the knowledge and attitude regarding Sickle-cell disease among higher secondary students.

Conceptual framework

Figure 1: Conceptual Framework for Knowledge and Attitude regarding Sickle-cell disease



Methodology

Cross-sectional descriptive survey design was adopted to assess the knowledge and attitude among higher secondary students regarding sickle-cell disease. This study was conducted at selected higher secondary schools of Banke District. The probability multistage cluster sampling technique was used for selecting 290 samples. Self-administered questionnaire was used to collect data. The self-administered questionnaire was developed with the help of literature review & fact sheet of World Health Organization about Sickle-cell disease to measure the variables. The instrument was divided into 3 parts. Part I consisted of information related to socio-demographic variables, Part II consisted of knowledge questionnaire regarding Sickle-cell disease and Part III consisted of 4 points likert scale to assess the attitude of students regarding Sickle-cell disease.

The collected data were analysed by using descriptive and inferential statistics (chi-square test and Karl Pearson correlation test) in SPSS version 20. The maximum knowledge score was 17 and minimum was 1 with range 16. The knowledge level was categorized by using the percentiles i.e. 0-6= Inadequate knowledge, 6-12= Average knowledge and above 12= Adequate knowldege. The mean attitude score was 27.83 with standard deviation of 3.70. The highest attitude score was 40 and the minimum was 13 with range 27. The attitude score was dichotomized as negative and positive attitude on the basis of mean.

The content validity of the instrument was maintained by consultation with subject matter experts, nursing research faculty, peers as well as extensive literature review. The instrument was translated into Nepali language and opinion of language expert was obtained. The instrument was translated back into English version to ensure the equivalence of the instruments.

Pretesting of the instrument was conducted with 10% of sample in similar settings to identify the accuracy, adequacy and completeness. On the basis of pretesting, instrument was revised and finalized for use in data collection. Permission was taken from the school authority for data collection and verbal & written informed consent was taken from the respondents prior to data collection. Instruction was given to all respondents about how to fill the self-administered questionnaire before distribution. Total around half an hour time was given to complete the questionnaire and it was collected immediately after finishing by the respondents.

Result

Table 1: Sample Characteristics of Respondents n=290

Variables	f	%
Age group		
15-17 years	176	60.7
18-20 years	114	39.3
Sex		
Female	125	43.1
Male	165	56.9
Ethnicity		
Musalwan	18	6.2
Tharu	75	25.9
Chhetri	93	32.1
Bramhin	45	15.5
Janajati	59	20.3
Religion		
Hindu	240	82.8
Muslim	14	4.8
Christian	22	7.6
Buddhist	14	4.8
Suffering from SCD in Family		
Yes	2	0.7
No	154	53.1
Not Diagnosed Yet	134	46.2

Table 1 shows around two third (60.7%) of respondents were from age group of 15-17 years. More than half (56.9%) respondents were male. Maximum percentage (38%) respondents were Chhetri, followed by Tharu 25.9%, Janajati 20.3%, Musalwan 0.2% and Bramhin 15.5%. Most of the respondents (82.8%) were Hindu. Only 0.7% respondents' family members were suffering from Sickle-cell disease.

Table 2: Respondents' Knowledge on Sickle-cell Disease n=290

Variables (Correct Responses Only)	f	%
Meaning of Sickle-cell Disease		
It is inherited blood disorder	127	43.8
Meaning of Sickle-cell Trait		
When someone is a carrier for sickle-cell disease	98	33.8
Causes		
Passed on to children from the parents	111	38.3
Diagnosis		
Blood Test	183	63.1
Treatment		
Yes	202	71.7
Appropriate time to test for Sickle-cell disease		
Newborn screening programme	88	30.3
Life expectancy of people living with Sickle-cell disease		
40-42 years	74	25.5
Appropriate action with childbearing age people with SCD		
Genetic counceling	90	31
More affected Population		
Tharu	104	35.9
More affected part of country		
West Terai Region	140	48.3
Chances of each child carrying sickle cell disease when both parents have sickle-cell disease		
50% of the children	76	26.2
Chances of each child carrying sickle cell disease when both parents have sickle cell trait		
25% of the children	58	20
Chances of each child carrying sickle-cell disease when one of the parent have sickle cell trait		
None of the children but 50% chance to have trait	75	25.9

Table 2 depicts that less than half (43.8%) of respondents had knowledge that sickle cell disease as a inherited blood disorder and only 38.3% of respondents knew the cause of sickle cell disease. Around two third (63.1%) of respondents mentioned the

diagnostic test is blood test and majority (71.7%) of respondents said that it can be treated. Likewise, only 30.3% of respondents identified the appropriate time for testing sickle cell disease at the time of new born screening programme as well as around one fourth respondents said the life expectancy of people living with sickle cell disease is 40-42 years. Similarly, around one third(31%) of respondents knew that genetic counselling is the appropriate action with child bearing age people with sickle cell disease. The mostly affected population was recognized by 35.9% of respondents followed by more affected place of Nepal was recognized by 48.3% of respondents.

Figure 2: Knowledge Level of Respondents on Sickle-cell Disease

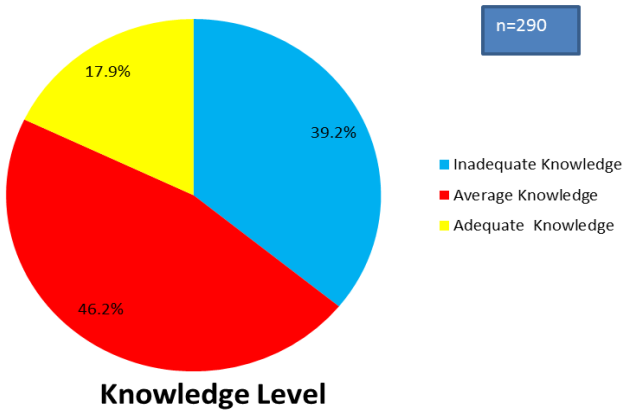


Figure 2 shows that maximum percentage (46.2%) of respondents had average knowledge on sickle-cell disease, around two third (35.9%) respondents had inadequate knowledge where as 17.9% respondents had adequate knowledge. The mean knowledge score was 8.44 (±3.88).

Figure 2: Attitude Level of Respondents on Sickle-cell Disease

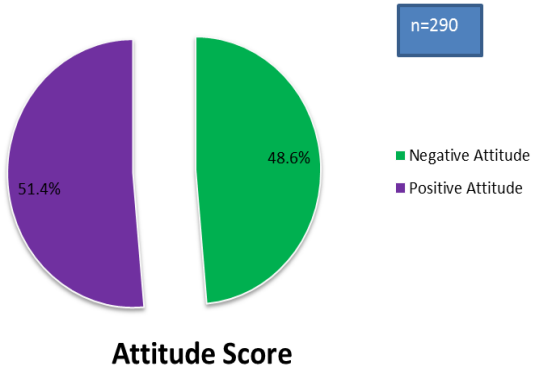


Figure 3 reveals that just more than half (51.4%) respondents had positive attitude towards sickle-cell disease and remaining 48.6% respondents had negative attitude.

Table 3 Correlation between Knowledge and Attitude

Knowledge	Karl' Pearson Correlation Test	r value	SD	p-value
Attitude		0.152	0.057	0.009**

** Correlation is significant at the 0.01 level

Table 3 reveals the correlation between knowledge and attitude of respondents was statistically significant (p= 0.009) at the 0.01 level.

Discussion

Sickle cell disease is an inherited haemoglobinopathy and diagnosis is usually based on Hb electrophoresis. The result from this study showed that majority of the students were within the age group of 15-17years. Male were more than half (56.9%) and most (82.8%) of them were Hindus. In this study, less than half (43.8%) of respondents mentioned that sickle cell disease, as a inherited disorder whereas 80% of respondents were aware of sickle cell disease as an inherited disorder in the study of Olakunle et al.[10] In this study, 63.1% of respondents knew that blood test can be done to detect the disease and 71.7% of respondents mentioned that sickle cell disease has treatment. Similarly, more than half (54%) knew that the disease can only be diagnosed through blood test in the study of Olakunle et al.[10] In contrast to this finding, only 15.1% of respondents believed that the disease is curable in a study conducted in Nigeria.[9]

Only 30.3% of respondents identified that newborn screening programme is the appropriate test for sickle cell disease but 89% knew that it can be diagnosed by a blood test in Bahrain.[15] One fourth (25.5%) of respondents recognized the life expectancy of people living with sickle cell disease and 31% of respondents correctly mentioned the appropriate action with child bearing age group with sickle cell disease is genetic counseling. In contrast with this result, 80% of respondents knew about the genetic

counseling in the study of Oludare and Ogili.[17]

Around one third (31%) of respondents knew that Tharu population is the most affected population with sickle cell disease in West Terai region of Nepal but 51% did not know the prevalance area of sickle-cell disease in Bahrain.[15] Maximum percentage (46.2%) of respondents had average knowledge followed by 35.9% had inadequate knowledge and 17.9% of respondents had adequate knowledge on sickle cell disease. Likewise, the respondents were moderately knowledgeable (mean knowledge- 55%) in the study of Bahraini.[11]

Just more than half (51.4%) of respondents had positive attitude towards sickle cell disease and 48.6% of respondents had negative attitude towards sickle cell disease while 76% of respondents showed wrong attitude towards sickle cell disease in the study of Nigeria.[10] In contrast to these findings, only 18% of the respondents showed negative attitude towards patients with Sickle-cell disease in the study Bazuaye & Olayemi.[12]

The correlation between knowledge and attitude was weak positive (p=0.009) among respondents in the present study. Likewise, the respondents' knowledge score was found to be moderately and positively correlated with their attitude in the study of Jeffer et al.[11]

Conclusion

The knowledge of sickle-cell disease among maximum respondents was average. The attitude towards sickle-cell was positive among just more than half respondents. The knowledge and attitude of respondents towards sickle-cell was correlated. So, it is concluded that there is a need of awareness programme to increase the knowledge level among respondents to develop positive attitude towards sickle-cell disease.

Recommendations

Similar study can be conducted including all higher secondary students of concerned district. Study can be done among the clients who are suffered with sickle cell disease.

Ethical consideration

Permission from the authority of concerned schools was taken. Informed consent was taken from each respondent with explaining objective of the study prior to data collection.

During data processing, code number was used instead of respondents' names in order to maintain anonymity. Confidentiality was ensured throughout the research study.

Respondents were selected without any discrimination of ethnicity, socio-economic status and religion. Researcher herself was present during the data collection. Participants were given liberty to discontinue participating in the study if they wish. Collected information was used only for this study purpose.

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