

# A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Sickle Cell Anemia Among Adolescent Girls at Higher Secondary School Raipur (C.G.)

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**Abstract:** The findings of the study revealed that in the pre-test 31(51.67%) students had poor knowledge and 29 (48.33%) had average knowledge regarding sickle cell anemia. Where as in post-test 46 (76.67%) were having good knowledge and only 14 (23.33%) had average knowledge regarding sickle cell anemia. The findings of effectiveness of structured teaching programme on knowledge revealed that there was significant difference in pre-test and post-test knowledge scores among adolescent girls as calculated “t” value (23.77) was greater than table value (3.47) at ‘P’ < 0.001 level of significance. The above findings indicate that structured teaching programme was effective in improving the knowledge of adolescent girls regarding sickle cell anemia. The findings of association of pre-test knowledge regarding sickle cell anemia among adolescent girls with socio-demographic variables revealed that in relation to education of father and previous knowledge there was significant association at 0.05 level of significance. Hence hypothesis (H2) was accepted regarding socio-demographic variables of education of father and previous knowledge as the chi square value 6.82, 4.49 was greater than table values 5.99, 3.84 at 0.05 level of significance.

**Keywords:** Adolescent girls, effectiveness, knowledge, sickle cell anemia.

## 1. Introduction

Sickle cell anemia is a term that denotes a group of genetic disorders caused by sickle shaped hemoglobin HbS. In patients with sickle cell disease the human red blood cells take a different shape upon deoxygenation because polymerization of the abnormal sickle hemoglobin. The process cause damage to the red blood cell membrane and causes the red blood cells to get attached in blood vessels. This disease is chronic with periodic painful attacks, sickle cell crisis and damage of internal organs with complications of strokes and subsequent shortened lifespan. Other form of sickle cell disease includes sickle hemoglobin C disease, sickle beta-plus thalassemia. Most of the children with sickle cell disease are healthy at birth and exhibit

symptoms later after decrease level of fetal hemoglobin (HbF) and can be identified by routine screening procedures or simple sickling test. They run in families and seen in siblings. Adolescent with sickle cell disease characterized by multiple physical challenges like delayed growth and sexual maturation, small stature and delayed puberty. They face multiple psychological problems such as depression or social isolation, school absenteeism and at times lower academic performances. This is the time when they face challenges, knowledge of disease may also be beneficial for adolescents, there knowledge to allow them to better control and awareness of their illness.

## 2. Need of the Study

Sickle cell anemia is the most prevalent problem among worldwide and its mainly caused due to inheritance of sickle hemoglobin its prevalence is highest among young children and women, the prevalence of sickle cell anemia disproportionately high in the developing countries, due to inadequate knowledge, poverty and poor access to the health services. In tribal area the status of adolescent girls and women in society and how they are treated or mistreated is a crucial determinant of their health, educational opportunities for girls and women powerfully affect their status and the control they have over their own lives and their health. the empowerment of women is therefore as essential elements for health. Hence these young people have rights to understand the changes they are going through and to develop skills of forming healthy and responsible relationship. Many diseases can occur by lack of awareness, myths and there is need for creating awareness about sickle cell anemia. Adolescent remain a largely neglected, difficult to measure and hard to reach population in which the needs of adolescent girls in particular, are often ignored. Adolescent girls are at high risk for sickle cell anemia, inadequate knowledge during adolescent can have serious consequences throughout the life. Very often

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in India, girls get married and pregnant even before the growth period is over, thus doubling the risk of sickle cell anemia. The sickle cell anemia in adolescent girl's attributes to the high maternal mortality rate, the high incidence of low-birth-weight babies, high prenatal mortality and the consequent high fertility rates.

### 3. Objectives

- To assess the socio-demographic variables of adolescent girls at higher secondary school of Raipur (C.G.)
- To assess the pretest knowledge scores regarding sickle cell anemia among adolescent girls at higher secondary school of Raipur (C.G.).
- To assess the post-test knowledge scores regarding sickle cell anemia among adolescent girls at higher secondary school of Raipur (C.G.).
- To evaluate the effectiveness of structured teaching programme on knowledge regarding sickle cell anemia among adolescent girls at higher secondary school of Raipur (C.G.).
- To find out the association between pre-test knowledge scores regarding sickle cell anemia with selected socio-demographic variables among adolescent girls at higher secondary school of Raipur (C.G.).

### 4. Hypothesis

H1: There will be significant difference between pre- test and post-test knowledge scores regarding sickle cell anemia among adolescent girls at higher secondary school of Raipur (C.G.).

H2: There will be significant association between pre-test knowledge scores regarding sickle cell anemia with selected socio demographic variables among adolescent girls at higher secondary school of Raipur (C.G.).

### 5. Methodology

The selection of research approach is the basic procedure for the conduction of research enquiry. A research approach tells us so as to what data to collect and how to analyze it. It also suggests possible conclusions to be drawn from the data. In

view of the nature of the problem selected for the study and the objectives to be accomplished, an evaluative research approach was considered to assess the effectiveness of structured teaching programme on knowledge regarding sickle cell anemia among adolescent girls at higher secondary school, Bhatagawn Raipur (C.G.).

### 6. Result

The adolescent girls i.e., 40 (66.37%) students belonged to age 14-16 years and only 20 (33.33%) students were of the age group 17-19 years.56 (93.3%) were Hindus 3(5%) were Muslims and only 1 (1.66%) were Christian.35 (58%) students were studying in high school and 25 (42%) were from higher secondary school.35 (58.33%) students were from nuclear families and 15 (25%) were from joint families and 10 (16.67%) from extended families.37 (61.67%) had secondary,12 (20%) had higher secondary level and only 11 (18.33) had primary level education.28 (46.6%) were in private jobs, 22 (36.67%) were self-employed, 10 (16.67%) were having government jobs.30 (50%) had secondary level, 19 (31.67%) had higher secondary level, 11 (18.33%) had primary level education.32 (53.33%) were house wives, 18 (30%) were in private jobs, were as only 10 (16.67%) were self-employed.49 (81.67%) were having family income between Rs.10,000- 20,000, whereas only 11 (18.33%) were having family income between Rs.20001-30000.41(68.33%) had no previous knowledge, were as only 19 (31.67%) had previous knowledge regarding sickle cell anemia. 30 (50%) had knowledge from teachers, 12 (20%) had knowledge from internet,10 (16.67%) had knowledge from mass media, and only 8 (13.33%) had knowledge from friends regarding sickle cell anemia.

Table 1 represents that the maximum increase in knowledge scores was in the area of general information regarding blood i.e., 40.60% (pre-test) to 85.40% (post-test) followed by dietary management, lifestyle modification and preventive measures from 41% (pre-test) to 83.33% (post-test). Where as in the area of sign and symptoms, diagnostic evaluation, and complication increase in knowledge was from 36.89% (pre-test) to 82.22% (post-test), in awareness of anemia from 38% (pre-test) to 81.25% (post-test) and minimum increase was in the area of

Table 1  
Area wise analysis of knowledge scores regarding sickle cell anemia among adolescent girls

Area wise knowledge regarding sickle cell anemia	Pre-Test					Post-Test			
	Max possible score	Mean	Mean %	SD	CV	Mean	Mean %	SD	CV
General information regarding blood	5	2.03	40.6	1.07	52.71	4.27	85.4	0.88	20.61
General information regarding anemia	4	1.52	38	1.05	69.08	3.25	81.25	0.88	27.08
Sickle cell anemia, its causes, and risk factors	9	3.53	39.22	1.37	38.81	7.2	80	1.29	17.97
Sign and symptoms, diagnostic evaluation management and complications	9	3.32	36.89	1.27	38.25	2.5	83.33	0.72	28.8
Dietary management, life style modification and preventive measures	3	1.23	41	0.93	75.61	2.5	83.33	0.72	28.8
<b>Total</b>	30	11.63	38.77	2.74	23.56	24.62	82.07	3.19	12.9

Table 2  
Overall analysis of pre-test and post-test knowledge scores regarding sickle cell anemia among adolescent girls

Criterion	Pre-Test Knowledge Scores		Post-Test Knowledge Scores	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good (21-30)	0	0	46	76.67
Average (11-20)	29	48.33	14	23.33
Poor (0-10)	31	51.67	0	0
<b>Total</b>	60	100	60	100

Table 3  
Effectiveness of structured teaching programme on knowledge regarding sickle cell anemia among adolescent girls

Knowledge	Max scores	Mean + SD	Gain %	Critical value	Paired t value (DF = 59)	Significance
Pre-test	30	11.63+2.74	43.3	3.47	23.77	P<0.001 HS
Post-test	30	24.62+3.19				

Table 4  
Chi-square analysis to find out the association between pre-test knowledge scores regarding sickle cell anemia among adolescent girls with socio-demographic variables

S. No.	Socio-demographic variables	Chi square Value	Df	Critical value	Significance
1	Age (in years)	0.54	1	3.84	P>0.05 NS
2	Religion	1.26	2	5.99	P>0.05 NS
3	Educational qualification of adolescent girls	2.33	1	3.84	P>0.05 NS
4	Type of family	0.43	1	3.84	P>0.05 NS
5	Education of father	6.82	2	5.99	P<0.05 S
6	Occupation of father	4.11	2	5.99	P>0.05 NS
7	Education of mother	0.80	2	5.99	P>0.05 NS
8	Occupation of mother	4.62	2	5.99	P>0.05 NS
9	Monthly income of family	0.78	4	9.49	P>0.05 NS
10	Previous knowledge	4.49	1	3.84	P<0.05 S
11	Sources of Knowledge	2.23	2	5.99	P>0.05 NS

sickle cell anemia it's causes and risk factors from 39.22% (pre-test) to 80% (post- test).

Table 2 reveals that in pre-test 31 (51.67%) students had poor knowledge and 29 (48.33%) had average knowledge regarding sickle cell anemia. Where as in post-test 46 (76.67%) were having good knowledge and only 14 (23.33%) had average knowledge regarding sickle cell anemia.

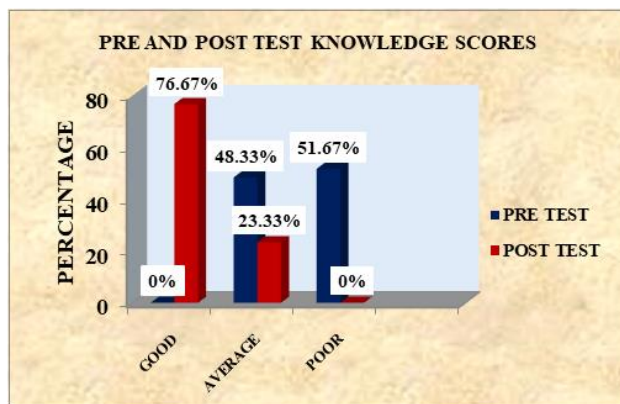


Fig. 1. Pre and post test knowledge scores

Table 3 reveals that there was significant difference in pre-test and post-test knowledge scores among adolescent girls regarding sickle cell anemia as calculated "t" value (23.77) was greater than table value (3.47) at 'P'< 0.001 level of significance. The above findings indicate that structured teaching programme was effective in improving the knowledge of adolescent girls regarding sickle cell anemia.

Table 4 reveals that there was significant association of knowledge regarding sickle cell anemia among adolescent girls with socio-demographic variables i.e., education of father and previous knowledge as the chi-square value 6.82, 4.49 was greater than the table values 5.99, 3.84 at 0.05 level of significance respectively Hence hypothesis H2 was accepted related to variables i.e., education of father and previous knowledge.

Whereas hypothesis (H2) was rejected regarding socio demographic variables i.e., age, religion, educational

qualification of adolescent girls, type of family, occupation of father, education of mother, occupation of mother, monthly income, previous knowledge, sources of information as the chi square values i.e., 0.54, 1.26, 2.33, 0.43, 4.11, 0.80, 4.62, 0.78, 2.33 was less than table values 3.84, 1.26, 2.33, 0.43, 4.11, 0.80, 4.62, 0.78, 2.23 at 0.05 level of significance respectively.

## 7. Discussion

The results reveals that there was significant difference in pre-test and post-test knowledge scores among adolescent girls regarding sickle cell anemia as calculated "t" value (23.77) was greater than table value (3.47) at 'P'<0.001 hence the hypothesis H1 level of significance. The above findings indicate that structured teaching programme was effective in improving the knowledge of adolescent girls regarding sickle cell anemia.

The above findings can be supported by a quasi-experimental study was conducted by Gayathri S (2016) to evaluate the effectiveness of structured teaching programme on knowledge regarding sickle cell anemia among 75 adolescent girls in Gujrat. The findings of the study narrate that the pre-test score was the 56.4% were as the mean post-test score increased 88.5%. over all findings of the study revealed that 51% of student had poor knowledge and only 2 % had good knowledge regarding sickle cell anemia.

## 8. Conclusion

The primary aim was "A study to assess the effectiveness of structured teaching programme on knowledge regarding sickle cell anemia among adolescent girls in higher secondary school Raipur, (C.G)".

An evaluative approach and quasi experimental research design was under taken for the present study, Random sampling was used to select 60 adolescent girls attending government higher secondary school, Bhatagawn Raipur, (C.G.).

## 9. Recommendation

- A similar study can be undertaken with larger sample size to create awareness among adolescent girls and to generalize

the study findings.

- A study can be conducted to assess the coping strategies of adolescent girls regarding sickle cell anemia.
- Comparative study can be done to assess the knowledge of adolescent girls regarding sickle cell anemia in urban and rural areas.
- A quasi-experimental study can be conducted with control group for the effective comparison.
- A study can be conducted in the community regarding the prevalence of sickle cell anemia among adolescent girls and adult women.
- A Study can be conducted in quality of life among sickle cell disease adolescent girls.

## References

- [1] Chintan Gamit, Sukesh Gamit et al. "A study of knowledge, attitude and practice about sickle cell anemia in patients with positive sickle cell status in Bardoli Taluka," *International journal of medical science and public health*, 2014.
- [2] Feroze M, Aravindan K P, "Sickle cell disease in Way and, Kerala: gene frequencies and disease characteristics," 2011.
- [3] Sr. Marcelin, "Prevention, management of sickle cell crisis among tribals," 2015.
- [4] M. Kaur, CBS Dangi et al. Burden of sickle cell diseases among tribes of India - A burning problem. *International Research Journal of Pharmaceutical and applied sciences*.
- [5] T. L. Kouf, T. D. Coates, L. Huazhi, N. Mody-Patel, and A. G. Hertzman, "The cost of health care for children and adults with sickle cell disease," *American Journal of Hematology*, vol. 84, no. 6, pp. 323–327, 2009.
- [6] S. Char ache, M. L. Terrain, R. D. Moore et al., "Effect of hydroxyurea on the frequency of painful crises in sickle cell anemia. Investigators of the Multicenter Study of Hydroxyurea in Sickle Cell Anemia," *The New England Journal of Medicine*, vol. 332, no. 20, pp. 1317–1322, 2015.