

# A Study to Assess the Effectiveness of Structured Teaching Program on Knowledge Regarding Sickle Cell Anemia Among School Going Girls of Selected Higher Secondary School of Balod (C.G.)

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**Abstract: Background:** Sickle cell anemia is the hereditary disorder which is the number of red blood cell or amount of hemoglobin is low. Red blood cell contains hemoglobin protein that it enables them to carry oxygen from the lungs and deliver it to all parts of the body. Chronic organ damage sickle cell anemia is the most common form of sickle cell disease. **Objectives:** To assess the pre test knowledge score regarding sickle cell anemia among school going girls of selected higher school of Balod. To assess the post test knowledge score regarding sickle cell anemia among school going girls of selected higher secondary school of Balod. To assess the effectiveness of structured teaching program sickle cell anemia among school going girls of selected higher secondary school of Balod. To assess the association between pre-test knowledge score regarding of sickle cell anemia with sociodemographic variable. **Hypothesis:** There is significant difference between pre-test and post test knowledge score regarding sickle cell anemia among selected higher secondary school going girls at Balod (C.G). There is significant of effectiveness structured teaching program on sickle cell anemia among school going girls in selected higher secondary school at Balod (C.G). There is significant association between pre-test knowledge score with sociodemographic variable. **Material and Methods:** Experimental study with true experimental one group, pre-test & post-test quantitative research approach design was adopted to assess the effectiveness of structured teaching program on knowledge, attitude and practice of girls regarding sickle cell anemia among school going girls. During the study period the sample were girls who fulfilled the inclusion criteria and sample size was calculated based on the main study finding. The sample size was 60 samples. The method of sample selection was purposive sampling technique was used to assess the educational program regarding sickle cell anemia among school going girls. The self-structured questionnaire for assessment of knowledge was used for data collection. During the educational teaching, the educative material black board in the school was used. **Results:** The main pre test score was increased from 43.6 to 82.75, the t-value 28.05 was much higher than the table value at 0.001 (significant was 0.05) Karl Pearson correlation value ( $r=0.73$ ).

**Keywords:** Sickle cell anemia, school going girls, structured teaching program knowledge.

## 1. Introduction

Adolescent are a period of second decade life and constitute over one fifth of India's population adolescents age are 14 to 19 years. This is the formative period of life when the maximum amount of physical, psychological, and behavioral changes take place. Many girls belonging to the marginalized groups face a married of problem related to health and social security, emotional physical, economic, cultural and cast related deprivation. Weight approximately 42-64kg and height approximately 155-169 cm. the total requirements are increased during adolescence age to support a period of dramatic growth and development. Eating right food at right time will prevent nutritional deficiency. Adolescence stage is a critical stage in the life cycle. In which the girls are vulnerable emotionally and physically ill, Without proper nutrition and health care they are susceptible to illnesses if it is not taking care properly they died in A majority of them had a preventable diseases, she is also face to the so many health problem If having the sickle cell anemia the girls so many problem they are faced and they will be more complication occurring during adolescent period like delayed puberty time she will be face the late menarche will be present and she also face the vaso-occlusive pain associated with their menstrual cycle, and they have under diagnosed abnormal uterine bleeding. Sickle cell affect over more 18% of the school going girls in India. The sickling girls grow into adult women with compromised growth in both physical and mental conditions. The rate of change in attitude, interest is seen as parallel to the Global database meta-estimate of homozygous sickle cell anemia was 112 per 100000 live birth 95% in Africa of 1125per 10000095% (680.43-1570.54) compared with 43.12 per 1000000(95%, 30.31-55.92) in Europe. In India according

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for more 18% global adolescent's girls and child death. About 200,000 in which overall number of deaths was 281 with a mortality rate of 16.77% survival probability was significantly higher in females. Each year about 300,000 infant are born with hemoglobin disorders. In our Chhatisgarh Maternal mortality ratio total among adolescent aged between 13-18 year dying due to adolescent cause 2,635,950 population and 2000 causes last 6 years adolescents girls and 10,000 children a year in this Indian state and in which Madhya Pradesh cause 32% in women 2008 and 2015-2016 were males 7,742 were female screened for sickle cell anemia 1,769 positive.

*Objectives of the study:*

- To assess the pre test knowledge score regarding sickle cell anemia among school going girls of selected higher school of Balod.
- To assess the post test knowledge score regarding sickle cell anemia among school going girls of selected higher secondary school of Balod.
- To assess the effectiveness of structured teaching program sickle cell anemia among school going girls of selected higher secondary school of Balod.
- To assess the association between pre-test knowledge score regarding of sickle cell anemia with sociodemographic variable.

*Hypothesis:*

H1. There is significant difference between pre-test and post test knowledge score regarding sickle cell anemia among selected higher secondary school going girls at Balod (C.G)

H2. There is significant of effectiveness structured teaching program on sickle cell anemia among school going girls in selected higher secondary school at Balod (C.G)

H3. There is significant association between pre-test knowledge score with socio demographic variable regarding selected higher secondary school going girls at Balod (C.G).

**2. Research Material and Methods**

Experimental study with true experimental one group, pre-test & post-test quantitative research approach design was adopted to assess the effectiveness of structured teaching program on knowledge, attitude and practice of girls regarding sickle cell anemia among school going girls. during the study period the sample were girls who fulfilled the inclusion criteria and sample size was calculated based on the main study finding. The sample size was 60 samples. The method of sample selection was purposive sampling part I- This includes the self - structured questionnaire to assess the general information of blood which consists of 6 items. Part II - This includes the self - structured questionnaire related to anemia which consists of 4 items. Part III -This includes the self - structured questionnaire related to sickle cell anemia, causes and risk factors of sickle cell anemia which consist of 8 items. Part IV This includes the self - structured questionnaire related to sickle cell anemia sign and, symptoms, Impact, diagnostic evaluation, Medical and Surgical management and complications which consists of 18 items. Part V- This includes the self- structured questionnaire related to sickle cell anemia. Dietary management, life style

modification and preventive measures which consists of 4 items. Each question carries 1 mark scoring was done as 1 mark for each correct response and 0 for wrong or no response.

**3. Result and Discussion**

The finding of the study can be summarized as follows:

School going girls 45(75%) belongs to the age group 13-15 years, girls 52(86.67%) girls belong were Hindu, 41 (68.33%) were nuclear family, 30(53.34 %) were belong living in rural place, 22(36.66%) subject have business, 29(48.35%) subject have house wife, monthly income 24(40%) subject have <20,000-30,000Rs, girls were vegetarian 24(40%), 40(66.67%) girls were subject not have any family history. Total mean and mean percentage of pre-test was 17.42 and 43.6 % respectively and of the post test was 33.1 and 82.75 % respectively.

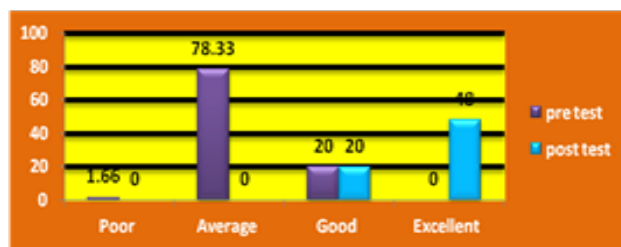


Fig. 1. Analysis of overall knowledge score as per criterion

It shows that in pretest 47(78.33%) school going girls had Average knowledge regarding sickle cell anemia 12(20%) had good knowledge and 1(1.66%) poor knowledge.

In post-test students knowledge 48(80%) excellent knowledge, 12(20%) gained good knowledge regarding sickle cell anemia. The data significant the structured teaching program was very effective in term of gain knowledge score regarding sickle cell anemia among school going girls. Hence H1 hypothesis (there is significant difference between pretest and post test knowledge score regarding sickle cell anemia among school going girls) is accepted.

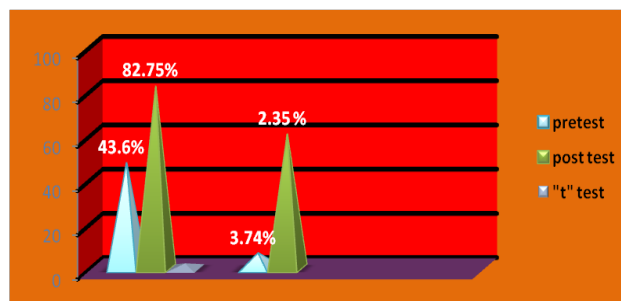


Fig. 2. The "t" test for effectiveness of information teaching program on knowledge regarding sickle cell anemia

The "t" test value obtained from pretest knowledge score (mean percent 43.6 SD 3.74) and post test knowledge score (mean percent 82.75 SD 2.35) was 28.05("t" 28.05calculated value) "t" table value at degree of freedom 59 is significant level i.e. t calculated is greater than "t" table value and it was significant (p<0.001). This data signifies that the teaching program was effective in improving the knowledge of school

going girls regarding sickle cell anemia. Hence the hypothesis H2 there is significant effectiveness of structured teaching program regarded sickle cell anemia between the pre and post test knowledge score is accepted.

Chi-Square is analysis to find out association between selected sociodemographic variables and knowledge score regarding sickle cell anemia.

To find out the association between pre-test and post -test knowledge score with socio demographic variable revealed that there was significant association of knowledge regarding sickle cell anemia among school going girls with socio-demographic variables i.e age of school going girls chi sq = ( 9.49 ) , Religion chi sq = (9.49), Type of family chi q= (9.49), Area of residence chi q=(9.49), occupation chi q = .(12.59), occupation of mother (12.59), income chi sq = ( 12.59). dietary pattern chi sq( 9.49),family history (12.49), previous knowledge (9.49) Information of sickle cell anemia  $df=(4)$  at  $p < 0.05$ ,  $df=(4) < 0.05$ ,  $df=(6)$  , This is higher than tabulated value of sickle cell anemia. There is significant association structured teaching program between pre- test knowledge scores of school going girls with selected demographic variables is accepted. Whereas hypothesis H3 rejected regarding socio-demographic variable there is no signification association with Age ,religion, type of family , occupation ,occupation of mother ,dietary pattern, family history previous knowledge (1.28) ,(1.58), (6.96) , (2.18) (3.73), (1.15) (2.31) was less than table value 9.49 , 9.49, 12.599.49, as the calculate value at 0.05 level of significance H3 is rejected respectively.

#### 4. Discussion

The aim of the present study was to evaluate the effectiveness of sickle cell anemia among school going girls in government school Basin, Balod (C.G.).

##### A. Distribution of study subjects according to sociodemographic variable in frequency and percentage

The finding is the study of supported by Jemima Dennis 2019 Conducted qualitative methods in a cross-sectional research design, religion appears to be important within African cultures, and the effects of religious practices on health outcomes are important. Ghanaians are religious people, largely identified as Christian (74.9%). Over 15% of the population is Muslim and about 5% practice traditional religions. Participants were 149 individuals: 34 were interviewed individually, 115 in focus groups. Demographics of participants can be found in Table 1. Individuals with SCD, their family members, and health care providers (primarily nurses and midwives) who participated in focus groups were primarily female (74.8%) while key informants were primarily male (76.5%). Key informants were also older than focus group participants at 51.8 years compared with 35.1 years. Participants were primarily from urban settings (69.1%), from the Akan ethnic group (90%), and with Twi as their primary language (89.3%). Individuals with SCD and family members were less likely to be married compared with key informants (55% versus 21.3% not married). Health care providers and key informants were more likely to have completed tertiary education (90%) compared with individuals

with SCD and family members (20%).

##### B. Analysis of overall knowledge score as pr criteria using frequency and percentage

Analysis of overall knowledge score as per criterion of sickle cell anemia regarding prevention and management of health problems was done and tabulated. The findings depict that 48 (80 %) school going girls had excellent knowledge and 12 (20 %) had good knowledge. This score was improved after the administration of information structured teaching program regarding prevention and management of sickle cell anemia of health problems. Overall, 60 (100%) had very good knowledge.

The finding is the study was supported by Mili Bhattacharya and Ravi Kulal (2017) , the study conducted teaching program was found to be effective in increasing the knowledge of the sickle cell anemia regarding symptoms ,complication and its medical and surgical management . Management interventions are critical for adolescents with sickle cell disease to better cope with their disease, improve health outcomes and health-related quality of life, and promote successful transition to adult health care services. However, very few comprehensive Self-management and transitional care programs have been developed and tested in this population. Internet and mobile Phone technologies can improve accessibility and acceptability of interventions to promote disease self-management in adolescents with sickle cell disease. The aim of this study was to qualitatively explore the following from the perspectives of adolescents, parents, and their health care providers the impact of sickle cell disease on adolescents to identify challenges to their self-management and transitional care and determine the essential components of a digital self-management and transitional care program as the first phase to inform its development.

A qualitative descriptive design utilizing audio-recorded, semi structured interviews was used Adolescents (n=19, aged 12-19 years) and parents (n=2) participated in individual interviews, and health care providers (n=17) participated in focus group discussions and were recruited from an urban tertiary care paediatric hospital. Audio-recorded data were transcribed verbatim and organized into categories inductively, reflecting emerging themes using simple content analysis.

The 't' test to evaluate the effectiveness of informational structured teaching program regarding prevention and management of sickle cell anemia of health problem. The effectiveness of informational structured teaching program regarding prevention and management sickle cell anemia health problem was assessed as in Table - 14 and found that the 't' value obtained from the pre test knowledge score Mean 17.42, standard deviation - 3.74 and post - test knowledge score Mean - 33.1 , standard deviation - 2.35 . It was highly significant.

The finding of the study is supported by Ankita Vaishnav and Mrs. Yashaswini Deepak (Jan-Feb, 2018). This study concludes that there is improvement in the level of knowledge prevention and its management of sickle cell anemia in school going girls which indicates that the information structured teaching program is effective. The development of information structured teaching program will help the school going girls to

enhance their knowledge. Hence the first hypothesis H2 stating that there will be significant gain in post - test knowledge regarding prevention and management of sickle cell anemia of health problems of administration of the information structured teaching program was accepted. The prevalence of sickle cell disease by haemoglobin electrophoresis among these 400 children patients was 59 (14.8%). Sickle cell trait patients were 11.3% and Sickle cell disease positive patients were 3.5%. Individuals with SCA have consistently low blood Hb concentration, normal MCV and high mean WBC's. Individuals with sickle cell trait had hematological parameters near to those of normal individuals.

Chi-square analysis carried out to find out the association between selected socio demographic variable with pre - test knowledge of teachers regarding prevention and management of sickle cell anemia of health problems.

It reveals that there is significant association between the level of knowledge and age of school going girls age at 1.28 % level of significance with 4 degree of freedom, calculated chi square value (12.59) is higher than table value of chi square (36.64) and significant association between the level of knowledge and structured teaching subjects of school going girls at 1 % level of significance with 3 degree of freedom, calculated chi square value (12.78) is higher than table value of chi square (9.97).

The finding is supported by Mili Bhattacharya and John J. (2017), the study showed that there is significant association between pre-test knowledge level with selected socio demographic variable like age, type of family and source of information also reveals that there is no significant association between the level of knowledge and education of teachers at 1 % level of significance, with 4 degree of freedom the calculated chi square value (1.75) is lower than table value of chi square (12.59), family income of father at (12.49%) level of significance with 4 degree of freedom. The calculated chi square value (9.49) is lower than table value of chi square (1.28), family type of family at 9.49 % level of significance with 4 degree of freedom the calculated chi square value (4.49%) is lower than table value of chi square (1.58) , religion of adolescents girls at 1 % level of significance with 3 degree of freedom the calculated chi square value (4.49) is higher than table value of chi square (12.84 ) and previous knowledge of sickle cell anaemia at 1% level of signification with 4 degree of freedom( 9.49) lower than (2.31). Thus, the hypothesis H3 that is there will be significant association between pre - test knowledge score of teachers with the selected socio - demographic variable is accepted with age and adolescents girls subject of school going.

## 5. Implication

### *Nursing practice:*

- Hospital health nurse can play an important role to create awareness among adolescent girls regarding causes, mode of transmissions, management and prevention of sickle cell anemia.
- Nursing staff conducts the health care program

regarding prevention and management of sickle cell anemia at hospital area.

- Nursing staff organize campaign program for early diagnosis of sickle cell anemia and its proper management at Hospital OPD.
- Nurses' active participation in school health program by providing direct and indirect care helps to achieve the goals of health services. Adolescent girl's deficit in knowledge regarding sickle cell anemia indicates the needs for arranging health education session in related topic.

### *Nursing education:*

- Nurse educator can take responsibility of organizing health camps among adolescent girls to improve knowledge regarding sickle cell anemia.
- Nurse educator should emphasize more on preparing students to impart health effect information to the school going girls regarding sickle cell anemia.
- The study has clearly proved that structured teaching programme was effective in improving the knowledge regarding sickle cell anemia.

### *Nursing administration:*

- The study has proved that the health of individual, family and community can be promoted by proper health education. So the health system of Balod districts can arrange for programs to prevent sickle cell anemia and promote health of individual, family and community.
- Nurse Administrator should coordinate with national, state local government body, NGO'S, mass media and conduct motivational campaign to explore the problems of adolescent girls.
- Organize conferences workshops exhibition to make people aware regarding knowledge of sickle cell anemia.

### *Community nursing:*

- The present study brings to light that a community health nurse can play a vital role in improving knowledge of sickle cell anemia among adolescent girls through the awareness program related to sickle cell anemia.
- Nurses' active participation in school health programs by providing direct and indirect care helps to achieve the goals of health services. Adolescent girl's deficit in knowledge regarding sickle cell anemia indicates the needs for arranging health education session in related topic.

### *Nursing research:*

- This study also brings about the fact that more studies need to be areas of recent advance treatment of sickle cell disease and genetic counseling conducted to prevent health problems in the Balod district and promote health of individual, family and community.
- The nurse use research findings to generate knowledge to guide nursing practice and improve the quality of life of adolescent girls.

- There is a good scope for nurse to conduct research in this area, to find out the effectiveness of various teaching strategies to educate the adolescent girls.

### 6. Conclusion

Based on the finding of the study it can be concluded that the structured teaching program was effective on increasing the knowledge among school going girls. It is important role in health promotion and prevention of diseases among adolescents. Although the focus often includes health promotion and health protection, early detection and prompt treatment and care of adolescent with chronic conditions, primary focus is on education and also improving the school going girls mean knowledge score in the present study was the in pretest as well as post test of prevention and management of sickle cell anemia health problem.

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