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Research Article

EFFECTIVENESS OF MORINGA LEAVES EXTRACT ON HEMOGLOBIN LEVEL AMONG ADOLESCENT GIRLS WITH ANEMIA IN SELECTED SCHOOLS AT MANGALORE

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ABSTRACT

A pre experimental one group pre-test post test, evaluatory research approach is adopted in the present study. 51 adolescent girls were selected based on the inclusion criteria by using non probability, purposive sampling technique. After pretest hemoglobin Moringa leaves extract was administered for 21 days, and on 22 day post test hemoglobin was assessed by using shali's method. Majority 19(37.3%) of adolescent girls belongs to a family income of less than Rs.5000. The mean pre-test score (10.82) is less than the mean post-test score (12.26). The t_{cal}(13.5) value is higher than the t_{tab}(2) value and p value less than 0.05 level of significance.

INTRODUCTION

India's total population as per Census of India 2011 is 1,210854,977, Karnataka consist of 61,095,297 population, and Dakshina Kannada has a population of 2,089,649. The total number of adolescent population in world is 1.2 billion out of which around 243 million belongs to India (UNICEF 2011)

According to UNICEF report 2011, nearly 113 million of adolescent girls are between the age group of 11 to 18 years. Out of which 56% (64 million) of adolescent girls were estimated to have anemia.

Objectives of the Study

- To estimate the occurrence of anemia.
- To assess the effectiveness of moringa leaves extract on hemoglobin level among adolescent girls with anemia
- To find out the association between the level of hemoglobin with selected demographic variables

MATERIALS AND METHODS USED

Location and duration

- The present study was conducted in selected rural school (Sri Ramakrishna high school, Pavoor- Harekala) at Mangalore.
- The study was done for 23 days which includes pre test and post test during November 2015 to December 2015.

Prepration

- Moringa leaves extract which was commercially available was administered (Iron content in 3 gms is 0.99mg)
- For 21 days 3 gms of moringa leaves extract mixed with 15 ml of mineral water was given to all the adolescent girls with mild anemia.

Pre Experimemtal Design and Grouping

Research design selected for the present study was one group pre-test post-test (pre experimental) design.

Procedure

This study was carried out in 3 phases.

Phase I

After obtaining the permission from the school authority, consent from the parents and assent was taken from the adolescent girls following which anemia screening was done with sahli's hemometer. After screening 98 adolescent girls 70 had mild anemia out of which 51 number of students were

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selected as subjects on the basis of inclusion criteria by purposive sampling technique.

Phase II

For 21 days 3 gms of moringa leaves extract mixed with 15 ml of mineral water was given to all the adolescent girls with mild anemia. Commercially available Moringa leaves extract was administered.

Phase III

On 22nd day post test was conducted by screening the hemoglobin level using sahli's hemometer to assess the effect of moringa leaves extract on hemoglobin level.

Statistical Analysis

Data was analyzed by using descriptive statistics and inferential statistics. The collected data were organized under following headings.

Section 1-- Prevalence of Anemia Using Frequency and Percentage

The pretest hemoglobin level was assessed and the data is tabulated using frequency and percentage which is represented in table 1.

Occurrence of anemia among adolescent girls

n=98

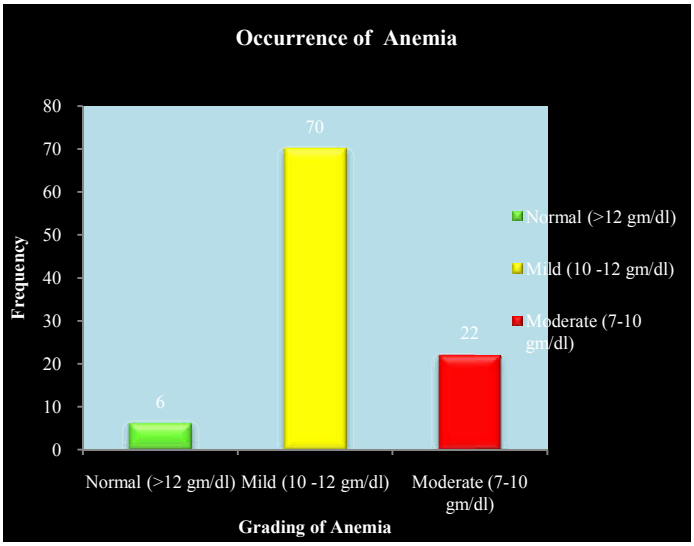

Fig 1 Occurrence of anemia among adolescent girls

The above figure 1 depicts that majority 70 (71.4%) of adolescent girls were having hemoglobin level of 10-12 gm/dl which indicates mild anemia according to WHO classification , 22(22.4%) were having hemoglobin level between 7-10gm/dl which is moderate anemia and 6(6.1%) were having hemoglobin level more than 12 gm/dl which is considered to be normal. The adolescents with hemoglobin level between 7-10 gm/dl (moderate anemia) were referred to the nearby health center.

Effectiveness of moringa leaves extract on hemoglobin level among adolescent girls

Effectiveness of moringa leaves extract on hemoglobin level

n=51

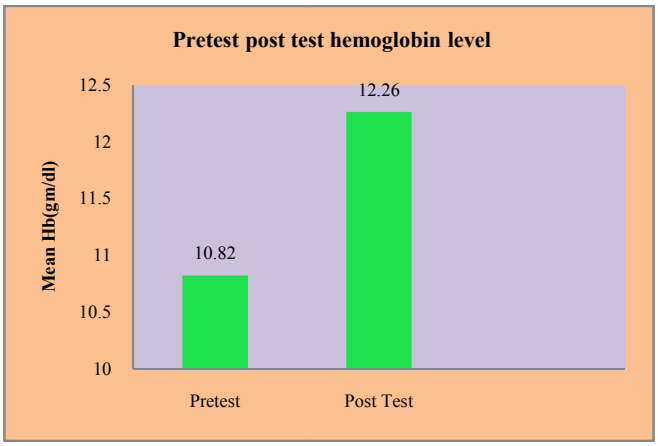

Fig 2 Represents mean pretest post- test hemoglobin level

Figure 2 shows the mean pretest hemoglobin level of the adolescent girls (10.82) is less than the post test hemoglobin level (12.26).The "t" $_{\text{calculated value}}$ (13.5) is higher than the table "t" $_{\text{table}}$ value (2) and p value is <0.05. So there is difference in mean pre- test hemoglobin level and mean post- test hemoglobin level at 5% level of significance. Hence the research hypothesis ($H_{1)}$ is accepted and the null hypothesis (H_{01}) is rejected at 5% level of significance. Therefore the administration of moringa extract is effective in improving the hemoglobin level among the adolescent girls.

Association between hemoglobin level with selected demographic variables

Association was assessed using chi-square and fisher's exact test.

- For monthly income of the family (fishers exact = 11.54) is less than <0.05, indicates there is significant association between the monthly income and hemoglobin level at 5% level of significance.
- Except for monthly income other selected demographic variables, p values were greater than 0.05 which indicates there is no association between the baseline demographic variable and hemoglobin level.

DISCUSSION

The results of the present study shows that out of 98 adolescents girls who were screened for anemia 70 (71%) of the adolescent girls had mild anemia, 22(22.4%) had moderate and only 6(6.1%) had hemoglobin level more than 12gm/dl.

Majority 19(37.3%) of adolescent girls belongs to the families income (low income group) of less than Rs 5000 per month.

This results of the study implies that nutritional status is based on the income of the family. In the developing countries like India people from the low socio economic status struggle to meet the daily needs of the family and are not in a state to provide nutritious food to all the family members. On the other hand the number of members in the family also influences the

meal pattern. Lack of knowledge and awareness of cost effective sources of iron like moringa leaves which can be used in diet frequently also contributes

In the present study 46 (90.2%) adolescent girls consumed red meat and 5(9.8%) were not consuming red meat

Inspite of consuming red meat adolescent girls were anemic which show consumed foods are not absorbed well from the intestine due to worm infestation or inadequate vitamin C intake. Lack of mothers knowledge on de worming practice may also influence the occurrence of anemia.

The present study shows significant difference in mean pre-test hemoglobin level (10.82) is less than the post- test hemoglobin level (12.26)

In traditional days, special food items were prepared by elders specially for children to supplement the basic dietary needs inspite of the routine diet. Due to modernization the importance of nutritional supplementation is faded apart. Moringa leaves extract supplementation which is used in this study is found to be effective in improving the hemoglobin level among the adolescent girls. The administration of moringa leaves extract is useful in treating mild and moderate anemia. In developing country like India the use of moringa in the diet helps in improving the nutritional status of the adolescent girls and is also the cost effective and easily available.

Nursing Implication

- Nursing personnel should teach the student nurses, anganwadi workers, parents and school teachers to assess the features of anemia.
- Various educational strategies can be used to disseminate health information like printed materials, posters, health education which helps the providing information to the community on home remedies.
- In schools stress on the use of moringa leaves in the diet of mid day meal program.

CONCLUSION

In developing countries like India, the importance for the nutrition of a girl child still remains neglected. Many times gender discrimination within the family keeps the female adolescent away from getting the nutritional diet which influence their health in the form of nutritional deficiencies like anemia. The poor socioeconomic status of majority of the families leads to lack of nutritional food to the children. As moringa is commonly available plant within the community with good source of nutrition. In the present study it was found to be effective in improving the hemoglobin level among the adolescent girls.

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