

Results of determining the effectiveness of ragi porridge increasing haemoglobin



**ASSIGN
BUSTER**

This chapter deals with the discussion based on objectives, study findings and conclusion by relating with the conclusion of previous studies. Iron deficiency anemia is a major public health problem in India widely prevalent among adolescent. To combat the micronutrient deficiencies especially iron deficiency anemia several intervention programmes have been initiated. The most commonly adopted strategy is the dietary supplementation could be an effective, preventive and curative strategy, in contrast to dietary diversification and food fortification, in providing immediate relief (Parman et al., 2001).

The present study is focused to determine the effectiveness of ragi porridge in increasing haemoglobin level among adolescent girls with anemia.

5. 1 Prevalence of Anemia among Adolescent Girls: The adolescent girls for the study were selected from the Thondamuthur Government Girls Higher Secondary School.

One hundred and ninety eight adolescent girls studying in ninth standard were assessed for prevalence of anemia. Among them 99 (50%) of adolescent girls were observed to have normal haemoglobin level of above 12gm/dl, 87 (44%) girls had mild anemia with a haemoglobin level of 10. 0gm/dl-11. 9gm/dl, 12(6. 1%) girls had moderate anemia with a haemoglobin level of 7. 0gm/dl-9. 9gm/dl and no one had severe anemia with a haemoglobin level of <7. 0gm/dl. Among adolescent girls between 10 and 15 years of age, iron deficiency anemia was detected in 85% of adolescent girls. Mild, moderate, and severe grades of anemia were 63. 25%, 12. 5%, and 5. 3% respectively (Indian Institute of Health and Family Welfare Annual Report,

2003). In this study, it was observed that the overall prevalence of anemia was 50% and the mean haemoglobin level was 11.3 gm/dl. In Arasur, rural part of Coimbatore the prevalence of anemia among teen age girls was 61.4% (Anila P. Joseph, Caroline Susan George et al., 2005).

5.2 Baseline Data of adolescent girls with anemia: Age of the adolescent girls with anemia varied between 12 years to 15 years. Only one (1.2%) girl was 12 years of age, 28 girls were 13 years of age, 51 (60.7%) girls were 14 years of age and four (4.8%) were 15 years of age. The present study revealed that the prevalence of anemia increased with the age of adolescent girls the majority of girls 60.7% were 14 years of age and only 1.2% was 12 years of age. A study conducted on prevalence of anemia among adolescent girls of scheduled caste community, the study revealed an age differential in the prevalence of anemia. The prevalence of anemia increases with age and becomes maximum in the age group 15+. The frequency of mild anemia was displayed to the maximum by age group 11+ and the minimum by age group 15+. The largest number of girls fell in the category of moderate anemia, with maximum present in age group 14+ as compared to age group 11+ where the number of lowest. Maximum level of severity of anemia was seen to be present in age group 15+ (Sharda Sidhu et al., 2005).

Majority 74(88%) adolescent girls belonged to Hindu religion only 10 (12%) girls were Christians. The highest prevalence of anemia among the Northeastern states was observed among girls from households with a low standard of living, non-Christian girls, girls from Scheduled Tribes. The highest percentages of girls with normal hemoglobin were reported among Christian Scheduled Tribes (Manoranjan Pal et al., 2009).

<https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

The data on type of family highlighted that majority of girls 57(68%) live in nuclear family and 25(30%) girls belong to joint family and only (2. 4%) girls were from extended family. The data on number of members in the family of adolescent girls revealed that major proportion of adolescent girls 54(64. 3%) had 4-6 members in the family and only few girls 9(11%) had 2-4 members in the family. A negative relationship was found between the number of family members and haemoglobin level, which showed that increase in number of members in the adolescent girl's family, had an impact on the status of anemia. In a study conducted on pervasiveness of anemia in adolescent girls of low socio-economic group, the prevalence of anemia was found lower in nuclear families than joint families. Further, size of family also affects the prevalence of anemia. As both quality and quantity of food consumption get affected by number of members in family especially with limited income sources(Kochar, G. K., 2009) . A high prevalence of anemia was found in adolescent girls belonging to families having family size > three than in those girls from families of family size 5.

4 Demographic Status of Parents:

Education status of adolescent girl's parents portrayed that majority 30(36%) mothers had primary education, only four (5%) mothers were graduates, 28(33. 3%) mothers had high school education, 5(6%) mothers had higher secondary education and 16(19%) mothers were uneducated. Majority 29(35%) fathers had primary education only six (7. 1%) fathers were graduates, 23(27. 9%) father had high school education, 14 (17%) father had higher secondary education, and six (7. 1%) father were uneducated. The majority of mothers (36%) of adolescent girl's with anemia had only primary education. A study on socio demographic factors causing anemia among adolescent girls revealed that prevalence of anemia was <https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

maximum in adolescent girls whose mother were educated up to primary level and prevalence progressively decreased with an increase in educational status of mother, being minimum, in adolescent girls whose mothers were graduate and above (Rita Singh, 2005).

With regard to occupation of adolescent girls parents , majority 29(35%) fathers and 28(33. 3%) mothers were coolie workers, 7(8. 3%) fathers and 3(4%) mothers were mill workers, 20(24%) fathers and 10 (12%) mothers were working in private concern, 1(1. 2%) father was government employee, 16(19 %) fathers had their own business, 3(4%) fathers were agricultures, 4(5%) mothers were house maids . Two (2. 4%) fathers were unemployed and 38(45. 2%) mothers were homemakers. In the present study, majority of fathers (35%) of adolescent girls with anemia were coolie workers and majority of mothers (45. 2%) were homemakers. In a study on socio - demographic factors causing anemia, the prevalence of anaemia was found to be maximum 48. 1 per cent in adolescent girls whose father's worked as labourers while it was 41. 8 per cent in private service, 27. 5 per cent in business, 38. 4 per cent in government service and minimum 17. 8 per cent in professionals(Rita Singh, 2005)

In the present study, family' monthly income of a major proportion 43(51. 2%) girls was less than 5, 000, 7(8. 3%) girls had family income of more than 10, 000 and 34(40. 5%) girls had family income of 5, 000-10, 000. Studies reported prevalence of anemia was lower in adolescent girls where the household income was more than Rs. 5000 per month and a higher prevalence where the household income was less than Rs. 5000 per month (Sabita Basu et al., 2004)

<https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

5. 5 Factors Related to Anemia:

5. 5. 1 Menstrual History: Among 84 girls, 79(94%) girls had regular flow of menstruation and 5(6%) girls had irregular menstrual flow, only 1(1. 2%) girl had excess flow of menstruation her haemoglobin level was 10. 2 gm/dl. Among girls, however, menstruation increases the risk for iron deficiency anemia throughout their adolescent and childbearing years. An important risk factor for iron deficiency anemia is heavier menstrual bleeding (Lloyd Van Winkle, 2009).

5. 5. 2 Dietary History: Most of the girls 73(86. 9%) were non-vegetarian and 11(13. 1%) girls were vegetarian. Majority 64(76. 2%) girls had the habit of drinking coffee/tea, 39(46. 4%) girls had habit of drinking once a day, 23(27. 4%) had habit of drinking twice a day and 2(2. 4%) girls had habit of drinking coffee/tea more than two times in a day and 20(23. 8%) girls had no habit of drinking coffee/tea. Anemia was found to be higher among girls with the attributes of those with habit of post meal consumption of tea/coffee (Verma, A., 2004).

5. 5. 3 History of Worm Infestation: With regard to history of worm infestation, only five (6%) girls had done de-worming in the past, majority 79(94%) girls had not done de-worming in the past. Most of the girls, 51(61%) had toilet facility at home, 26(21. 5%) girls practiced open field defecation and only 7(5. 9%) used the public toilet. In school all the 84(100%) girls used the toilet facility. 79(94%) girls used chappals while going to toilet, 5(6%) used no chappals while going to toilet. 46(54. 8%) girls washed hands with soap and water after each defecation, 38(45. 2%) girls washed with plain water after defecation. A study on epidemiology of iron <https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

deficiency anemia in Zanzibari schoolchildren reported that worm infestation has influence on anemia largely. It was found that 25% of all anemia, 35% of iron deficiency anemia and 73% of severe anemia was attributable to hookworm infection (Stoltzfus et al., 2006).

5. 6 General Examination of Adolescent Girls with Anemia:

5. 6. 1 Symptoms: History collection on symptoms of anemia revealed that majority 36(42. 9%) girls had history of shortness of breath on exertion, 36 (42. 9%) girls had complaint of easy fatigability, and 41(48. 8%) girls had loss of appetite. In a study on supplementation effect of iron and folic acid capsule on anemic adolescent girls it was reported, that majority of subjects participated in the study complained for lethargy (72. 22%) and breath-less ness on exertion (64. 81 %) Problem of anorexia was faced by about (35. 18%) of the subjects (Neetu Gupta, 2010).

Among 84 girls, 30(35. 7%) girls had history of dizziness, 28(33. 3%) girls had history of palpitations. In another study on prevalence of anemia, it was observed that the signs and symptoms headache, fatigue, dyspnoea, palpitations, and syncope attacks were significantly more prevalent in anemic subjects (Goel. S., 2007).

In this study a major proportion 66(78. 8%) girls had the complaints of hair loss. A study on prevalence of anemia and the frequency of common anemia-related symptoms among schoolchildren revealed that symptoms of anemia predominated among anemic and healthy teenage girls (87. 5% vs 73%), Paleness predominated among 6-8-year-old children (35. 1%) and shedding of hair(41. 1%) among teenage girls (Izolda Kriviene , 2006)

5. 6. 2 Body Mass Index: In the study majority of the girls 51(60. 7%) with anemic were under weight, 31(36. 9%) girls had normal body mass index and only 2(2. 4%) girls were overweight. The proportion of thinness was significantly higher among subjects who suffered from iron deficiency anaemia. Furthermore, thin subjects had a 5 fold higher risk of suffering from iron deficiency anaemia than non-thin subjects (Kurniawana et al., 2006)

5. 6. 3 Physical Examination: Physical examination of adolescent girls with mild anemia depicted that, majority of girls 48 (57. 1%) girls had pale conjunctiva. Appearance of tongue was pale color for 34(40. 5%) girls. 14 (28. 6%) girls had pale skin and pale face. A negative correlation was found between the frequency of signs of anemia and the level of haemoglobin (ranging from 10. 0gm/dl-11. 9gm/dl). In a study on supplementation effect of iron and folic acid capsule on anemic adolescent girls the symptoms of anemia were observed among all the subjects with wide range of variation. Paleness of eyes was in maximum number of the subjects (62. 96 %). However, the paleness of skin and flat nails were found in (66. 66%) and (33. 33%) percent of subjects respectively (Neetu Gupta, 2010).

5. 7 Comparison of Mean Difference Haemoglobin Level: The mean haemoglobin level before the administration of ragi porridge was 11. 24. The mean haemoglobin level after the administration of ragi porridge was 12. 52. The mean difference in haemoglobin level was 1. 28. This assessment shows that there is increase in haemoglobin level after the administration of ragi porridge. The mean difference of pre and post haemoglobin level was 1. 28 gm/dl. A study was conducted to evaluate whether regular consumption of rapadura (jaggery) as a natural sweetener in fruit juices is capable of <https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

preventing or treating anemia in preschool children, in the group consuming the jaggery -fortified beverage mixture, mean haemoglobin was 11.1 ± 1.09 g/dl at baseline and 11.6 ± 2.10 g/dl after intervention. For the control group, mean haemoglobin was 10.2 ± 1.20 g/dl 3.11% at baseline and 10.3 ± 1.26 after the intervention (Gopi. Ghosh. N ., 2006).

5. 8 Range of Increase in Haemoglobin Level from Pre-assessment Haemoglobin Value after Administration of Ragi Porridge:

Among the 84 girls, majority 24(29%) girls had increase in haemoglobin level in the range of 1.0gm/dl-1.5gm/dl, the increase in haemoglobin level was 3.7gm/dl for only one (1.2%) girl. There was no increase in haemoglobin level for 6(7.1%) girls.

5. 9 Comparison of Haemoglobin Level before and after Administration of Ragi Porridge through Paired “ t” Test: The calculated value of t is 14.22, which is more than the tabulated value at a $p < 0.001$ level. This shows that there is a significant difference in haemoglobin level before and after administration of ragi porridge. A study was conducted to test a supplement food developed using locally available foods like jaggery, processed rice flakes, cress seeds, and amaranth seeds in school going children belonging to low income families. The children were given one ladoo per day for a period of 60 days. Effect of supplement on haemoglobin levels, height and weight were assessed. Significant increase in hemoglobin levels was observed in both the boys and girls after 30 days of supplementation only. In majority of the subjects, progression from one haemoglobin levels to the next higher level was observed (Sood, 2002).

<https://assignbuster.com/results-of-determining-the-effectiveness-of-ragi-porridge-increasing-haemoglobin/>

5. 10 Theoretical Framework: Effectiveness of Ragi Porridge in Increasing Haemoglobin Level among Adolescent Girls with Anemia: Modified Widen Bach's helping art Model was adopted to assess the effectiveness of ragi porridge in increasing haemoglobin level among adolescent girls with anemia. Initial assessment of haemoglobin was done for 198 adolescent girls and 84 adolescent girls with mild anemia were selected as subjects for the study. 200ml ragi porridge was administered for them for 3 weeks and reassessment of haemoglobin was done by cyanmethaemoglobin method. The mean haemoglobin level before the administration of ragi porridge was 11. 24. The mean haemoglobin level after the administration of ragi porridge was 12. 52. The mean difference of pre and post haemoglobin level was 1. 28 gm/dl (Fig 5. 1).