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EFFECTIVENESS OF BEETROOT EXTRACTION ON IRON DEFICEINCY ANAEMIA AMONG ADOLESCENT GIRLS: A REVIEW OF RELATED LITERATURE

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ABSTRACT:

Iron plays an important role in biology forming complexes with molecular oxygen in hemoglobin and oxyglobin. Iron deficiency is one of the most common of the nutritional deficiencies. Iron is present in all the cells in the human body and has several vital functions and decrease in iron may lead to morbidity and death. Iron deficiency anemia can cause shortened attention span, alertness and learning in adolescence. Anemia also can cause shortness of breath, dizziness, headache, coldness in your hands and feet, pale skin, chest pain, weakness, and fatigue (tiredness). Signs and symptoms of iron deficiency may include brittle nails, swelling or soreness of the tongue, cracks in the sides of the mouth, an enlarged spleen, and frequent infections. Adolescence is a time of intense physical growth. It is also a stage of stress and strain. Most of them are having poor access to proper health care, nutrition and education. Beetroot juice is particularly beneficial as an anaemia remedy for children and teenagers. Many studies proved that beet root also contribute to improve the haemoglobin level in the blood.

A review of available literature on the topic or related topics is bound to save time for the future researchers. This will enable them to concentrate harder on their research. That will ensure progress of the human civilization.

Key Words: *Anaemia, adolescent girls and literature.*

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INTRODUCTION:

Adolescence is a time of intense physical growth. It is also a stage of stress and strain. Most of them are having poor access to proper health care, nutrition and education. Beetroot juice is particularly beneficial as an anaemia remedy for children and teenagers. Many studies proved that beet root also contribute to improve the haemoglobin level in the blood.

REVIEW OF RELATED LITERATURE:

Nagy, Anikó et al., (2015). Carried out a research and explained that the Western medicine is beginning to increasingly focus on the key role of healthy nutrition and lifestyle in preventing certain diseases. Therefore, it is important to emphasize the importance of primary prevention in our country, and to promote it; not only the health care team work, but broaden the recommended foods, which have benefit for human health as well. Polyphenols are antioxidants, which are easily consumable with diet, however, food processing can influence the level of them. In our study, nutritional assessment was made of raw beet root and a juice, made from this beet root. We investigated in which special diet referenced to eat this foods and whether this is suitable to develop functional foods from animal sources as a row material.

Gayathri Priya (2013) conducted a real experimental study to assess the effectiveness of beet root juice on haemoglobin among adolescent girls. The objective of the study was to assess the effectiveness of beetroot juice on haemoglobin among adolescent girls. True experimental observe design was adopted and the study conducted in Aringar Anna Government Higher Secondary School, Chennai, Tamil Nadu. A total of 60 adolescent girls were selected for the study, in that 30 girls were in experimental and 30 girls were in the control group who fulfilled the inclusive criteria were selected by using simple random sampling technique. The freshly prepared beetroot juice was administered to the samples for 20 days in mid-morning. Pre and post assessment was done using the checklist for assessing the signs and symptoms of anaemia and cyanmethemoglobin method for checking haemoglobin level. The data analysis was done by using descriptive and inferential statistics. Samples in the experimental group showed a highly significant improvement in haemoglobin level following the administration of beetroot juice ($p<0.001$), in comparison with the control group. The findings unfolded that the overall post-test mean score of haemoglobin in the study group was 12.67 with SD of 0.99 and the overall post-test mean score of haemoglobin in the control group was 10.14 with SD of 0.48. It showed that once the administration of beetroot juice, there was a high significant improvement in the haemoglobin level of adolescent girls with a „t" value of 12.633 at $p=0.001$.

Kokore (2013) conducted a quasi-experimental study to determine the prevalence of anaemia in a school population of 310 children (172 girls and 138 boys) aged 5 to 11years from three municipalities of Abidjan. Haematological parameters and the electrophoretic profile of haemoglobin were done for all the children. The results of study revealed that 82.9 % of children have indicated that at least a parameter of the blood count was abnormal. The prevalence of anaemia (haemoglobin < 11.5 g/dl) was 30.3 % with 33.3 % of males and 29.1 % for 56 girls. (239/310). The prevalence of anaemia in girls (87.8%) was higher than the boys (65.1%)

Htet (2012) conducted a cross sectional study to acquire information on the current status of anaemia among adolescent girls. A sample of 1269 was selected by random sampling method. Information was obtained by complete blood count, anthropometry, and socioeconomic characteristics. Anaemia was differentiated by the application of Bess man & a circ;€™s and Green and King & a circ;€™s index classification. Result showed that the prevalence of microcytic anemia was 59.1% and 35.8% was iron deficiency anaemia.

Biradar (2012) performed a cross-sectional study to assess the prevalence and the severity of anaemia among adolescent girls in rural areas (Vantamuri PHC which is situated 22 kilometers away from Belgaum city), and to study the association of anaemia with respect to the age of the participants and their socio-economic status. Eight hundred and forty adolescent girls (10-19 years of age) were participated in this study. The overall prevalence of anaemia was 41.1% (345 / 840), adolescent girls had varying severity of anaemia, 34.6% were mildly anaemic, 6.3% were moderately anaemic and only 0.2% (2) were severely anaemic. The prevalence of anaemia among the girls who belonged to class III was 4.1%, whereas it was 43.1% in girls of class IV and 100% in girls of class V. This was found to be statistically significant. The prevalence of anaemia among the late adolescents was 60%, whereas; it was 38.9% among the early adolescents. This was found to be statistically vast.

Ramzi (2011) conducted a cross sectional study to investigate the prevalence and risk factors of anaemia and iron deficiency anaemia among adolescent girls. Total of 363 adolescent school girls were selected by using random sampling method. Socioeconomic, demographic and related risk factors were obtained by a questionnaire. Haematological parameters and serum iron indices were measured. There were 21 cases of anaemia (5.8%), and 37(10.2%) iron deficiency anaemia. Most of the adolescent girls were mild anaemic

(85.7%) MCV, TBC, age and BMI had statistically significant relationship with haemoglobin. Only parasite infestation in the last 3 months had a 6.83 times more risk of anaemia than those without this history (95%,CI:1.66-28.11). The result showed that prevalence of anaemia was significant (p<0.05) among adolescent school girls.

Siddha (2011) carried out a cross sectional study in selected Anganwadi centres of rural area of Hassan district to estimate the prevalence of anaemia among adolescent girls and to study the socio demographic factors associated with anaemia. 14 adolescent girls (10-19years) were selected for this study. Data analysis was done by using the proportions and chi-square test. The study results showed that the prevalence of anaemia was found to be 45.2%. Among them 40.1% had mild anaemia, 54.92% had moderate anaemia and 4.92% had severe anaemia. A statistically significant association was found with iron deficiency anaemia, weight loss and anaemia, pallor and anaemia. A high prevalence of anaemia among adolescent girls was found, which was higher in low socio economic strata.

S.C. Jai Prabhakar (2009) conducted an experimental study indicated that 77.7 % of175 Jenukuruba Primitive Tribal Children (6 to 10 years) of Mysore District, Karnataka were suffering from anaemia. The study revealed that, 36.57% of children were moderately anaemic, 26.29 per cent were mildly anaemic and14.86 percent severely anaemic. Their study indicates that prevalence of anaemia was significantly higher in girls when compared to boys, (Girls 83.33% and Boys 70.89%).

Gupta (2009) assessed the Pervasiveness of anaemia in adolescent girls of low socio-economic group of the district of Kurukshetra (Haryana) India. 110 girl students (13-16 years) who were studying in VIII, IX, X, XI class of Kurukshetra of Haryana were participated in this study. It was found that out of one hundred ten girls, only 20 (18.19 %)subjects were non anaemic and remaining 90 (81.81 %) subjects were suffering from various degree of anaemia and their haemoglobin level ranges between 6.6g/dl to 11.0 g/dl, among the anaemic subjects, 20 % had mild, 73.33 % had moderate and 6.67 % of subjects had severe degree of anaemia. Prevalence of anaemia was found lower in nuclear families than joint families. Further, size of family also affect, higher the number of members in the family, higher the prevalence of anaemia. As both quality and quantity of food consumption get affected by number of members in family especially with limited income sources.

Chaudhary (2008) conducted a study to found 35.1% anaemia prevalence among 296 adolescent females (10 to 19 years old) in the urban area of Nagpur (India), of which 69.2 % had mild anaemia, 30.8% moderate anaemia and none of the girls had severe anaemia. They found significant association between anaemia and the socio – economic status of girls, their parents' literacy.

Choudary (2007) conducted a cross sectional study to assess anaemia among unmarried adolescent girls in South India, 100 adolescent girls, aged from 11 to 18 years were selected as samples by purposive sampling method. Blood samples were collected and haemoglobin test was done. The result showed that 29% of adolescent girls were affected with severe anaemia, rest of them had mild anaemia 71% (P<0.05). Anaemia has a significant association with low socio economic status, religion and reporting of infrequent or non-consumption of meat. He concluded that the haemoglobin status of the adolescent girls needs to be improved through dietary modification along with the iron supplements and nutritional education.

Dreyfuss et al., (2007) conducted an analytical study to assess the anaemia among Indian adolescent girls under the project by Health and Family Welfare Bureau. Blood collection was done and serum ferritin, peripheral blood smear and Haemoglobin test were done and analysis was carried out. The result showed that in India severe anaemia ranges from 1.6% to 11.7% among adolescent girls, moderate anaemia seen in rural area were more (38%) than in urban (11.9%) area (P< 0.05). He concluded that the adolescent girls are vulnerable to iron deficiency anaemia, which interferes in their physical capacity and work performance. Adolescent period is the preparatory period for the physical development for the future mothers. The young reproductive age group women are more susceptible to anaemia, because of their poor dietary intake.

Rohini (2007) performed a retrospective study to assess the prevalence of anaemia among adolescent girls in 16 slums at Pune. 1142 Adolescents were selected as samples. Data collection was done based on bio physiological measures, dietary history morbidity history, anthropometric measures, mental history, frequency of lemon consumption with meals, consumption of locally available iron rich foods. The result showed that 1.3% of girls were severely anaemic and 58% of girls were moderately anaemic (P< 0.01) in the study population.

CONCLUSION:

A review of available literature on the topic or related topics is bound to save time for the future researchers. This will enable them to concentrate harder on their research. That will ensure progress of the human civilization.

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