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EFFECTS ON IRON AND FOLIC ACID V'S HONEY DATES AMLA MIX ON INCREASING HAEMOGLOBIN LEVEL AMONG ADOLESCENT GIRLS

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ABSTRACT

Anaemia is the most common nutritional deficiency disorder in the world. It is a condition that occurs when the red blood cells do not carry enough oxygen to the tissues of the body. Globally, anaemia affects 1.62 billion people, which corresponds to 24.8% of the population. Adolescent girls are particularly prone to iron deficiency anemia because of increased demand of iron for haemoglobin, myoglobin and to make up the loss of iron due to menstruation and poor dietary habits. The aim of the study is to determine the effectiveness of iron and folic acid v's honey dates amla mix on increasing haemoglobin level among adolescent girls. Quantitative experimental and control group pre and post test design was used in this study. The study was conducted among adolescent girls in two different residential homes. Total study population is 170 adolescent girls were selected by simple random sampling technique. 85 adolescents girls were assigned to the experimental group and 85 participants in control group. Structured interview Questionnaires were used to assess demographic variables. For experimental group honey dates amla mix was given to 3 month, where as control group iron and folic acid supplementation were provided. Both the group Pre and post test blood samples were collected and analysed by sahli'S method.

Results: The data was analysed using non parametric test as level of heamoglobin between the control pre test, post test1, post test 2, post test 3 and experimental pre and, post test1, post test2, post test 3 and experimental group(unparied 't' test) the level of hemoglobine show there is no significant in control pre test and significant changes at p=<0.001 in control and experimental post test 1,2,3 respectively. This study concluded that increasing the haemoglobin level among experimental group than the control group. Normally people are aware of benefit of Honey dates amla mix but this study was motivate them to practice this dietary therapy for adolescent health problems because it will be portable.

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INTRODUCTION

Adolescent girls constitute a more vulnerable group particularly in developing countries where they are traditionally married at an early age and exposed to the risk of reproductive morbidity and mortality (Mittal et al., 2011). The term 'adolescence' comes from the Latin word meaning 'Adolescere', this means 'to emerge' or 'achieve identity.

According to World Health Organization an adolescent is defined as any person between the ages of 10 and 19 years. Early adolescence is between the ages of 10-13 years, Mid adolescence ages between 14-15 years and Late adolescence is the age between 16-19 years (Mathur, 2007; Rawat et al., 2001). Adolescence is a developmental period during which a person is no longer a child, but not yet an adult.

Anemia is a worldwide problem most commonly due to widespread nutritional deficiencies and cannot be considered as an isolated apart from the general nutrition, infections, infestations and socioeconomic conditions of the population affected.[13] Anemia is widely prevalent in India, affects both sexes and all age groups. In India, inadequate intake, faulty dietary habits and hookworm infestations are some of the main causes of anemia in rural areas (Nayar, 2007).

Iron deficiency is by far the commonest nutritional cause of anemia, it may be associated with a folate deficiency. An orphanage is an institution dedicated to the care and upbringing of children who have lost their parents. While they may provide some of the nurture, typical institutions do not provide the holistic care that children are entitled to for all round development. Research has shown that children in institutions lack basic and traditionally accepted social and cultural skills to function in their societies; have lower levels of educational attainment; have problems adjusting to independence after leaving the orphanage, lack basic living skills etc (Lal, 2007). Among adolescent girls constitute a more vulnerable group particularly in developing countries where they are traditionally married at an early age and exposed to the risk of reproductive morbidity and mortality. Developmentally it is crucial period particularly with reference to reproductive health (Rajagopal, 2010; http:// southasia.oneworld.net/today). The idea of weekly iron supplementation was conceived as a preventive rather than a therapeutic measure for iron deficiency and its progression to anaemia. This preventive approach considers the capacity of fresh intestinal cells, to absorb iron and deliver it to transferrin in response to internal signals reflecting total body iron status and homeostatic need (Alvarez-Suarez, 2010).

The human intestinal mucosal turnover occurs every 5 to 6 days and preventing iron only to new mucosal cells for optimum absorption seemed to be attractive option for prevention of iron deficiency (Viteri & Berger, 2005 Food and nutrient needs are proportionately higher during growth spurt.[8] It has been reported that iron is required for growth in adolescents and that on adolescents girls on marginal diet iron deficiency may be consequence of growth and skeletal development.[14] Low iron stores throughout childhood may contribute to delayed age of menarche and anemia in the adolescents may impair immune response (National Nutrition Bureau. Prevalence of Micronutrient Deficiencies, 2003). About 30% of India's population is in adolescent age group of 10-19 years. It is estimated that there are 331 million adolescents in India (Rajaratnam, 2000). According to NFHS-III, 56% of adolescent girls were anaemic and 30% of adolescent boys suffer from anemia. India's National Institute of Nutrition (NIN) found the prevalence rate of anaemia in rural areas as high as 91% by 2005 among adult non-pregnant no lactating women, report shows that across all the age groups, anaemia prevalence is roughly 10% higher in rural areas as compared to urban (Must, 1991). Though the government was provided the IFA supplementation to adolescent girls but still remain in prevalence of anaemia is more. So the researcher interested to plan herbal preparation (honey date amla mix) is have high concentration of antioxidant polyphenol compound and amla is contain rich in Vit c it will absorbed iron in baby. Hence to compare the effectiveness on honey dates amla mix v's IFA on increasing haemoglobin level on iron deficiency anaemia among adolescent girl selected rural residential homes.

MATERIALS AND METHODS

In this study quantitative research approach was used. A quantitative randomized control and experimental with pre and post test research design was used for this study. The study was conducted among adolescent girls in two different residential homes in kanchepuram and Kaliyampoondi . The study includes the adolescent from the residential home who are having the age group of 13-18 years, hemoglobin level less than 12gm, attained menarche interested to participate. The study excluded the adolescent girls with other diseases like profile of bleeding disorder, if they take long term medication, systemic disease (associated and illness). The total sample size is 85 adolescent girls in each group. **:** Both the care takers and adolescent girls were instructed to administration of honey dates amla mix for experimental group and clarified doubts before the study. Based on the inclusion criteria adolescent girls were asked to assemble in the hall. Structured interviewer administered pre test questionnaires were used to collect information on the study variables that included demographic and clinical variables and signs & symptoms were collected according to the standard guidelines in the clinical book. Each adolescent girls was examined thoroughly and significant findings were recorded. Blood was collected from each subject to estimate hemoglobin (in g %) by Sahlis method and adolescent girls with mild, moderate, and severe haemoglobin concentration were included in study. Participants were asked to assemble in the dining hall one honey dates amla mix administered for adolescent girls in early morning and before the breakfast daily for three months. For Control group: weekly once a dosage of 100mg of elemental iron and 500mcg of folic acid Administered for adolescent girls for four weeks. Daily telephonic remembrance was given for checking continuations and follow up. During the three months intervention every after the 21 every days post test1, post test 2 post test 3 the level of haemoglobin was analysed for both groups. haemoglobin value was read and recorded. Later the reading was classified as normal, mild, moderate or severe anemia based on the WHO recommended cut off points. Analysis of collected data was done through the use of secured statistical test such us paired t test, and ANOVA analysis. For each test the p value of 0.05 levels was used for statistical significance.

ETHICAL CONSIDERATION

The pilot study was conducted after getting approval from the Institutional Ethical Committee of Saveetha University. Permission was obtained to conduct the study from both residential homes to conduct the study. Informed consent and assent was translated in Tamil. Written informed consent was obtained from the institutional authority of the residential home and the written assent form was signed by the participants for their willingness to participate in the study. The ethical principles were followed and adhered to protect the rights of the participants. Confidentiality of the data was ensured throughout the study**.**

RESULTS

Each group 85 adolescent girls were selected with iron deficiency anemia at kanchepuram and Kaliyampoondi hostels who full fill the inclusion criteria were included in the study. Written permission was obtained from the hostel authorities, inform consent was obtain from parents of adolescent girls and study the participants.

Table: 1 Level of heamoglobin in control (conventional) group and experimental (herbal) group in pre test and post test

S.No	Parametr	Group	Mean ± SE	Paired test one way repeated measures ANOVA		Con-Exp Pre test	Con-Exp Post test 1	Con-Exp Post test 2	Con-Exp Post test 3
1	Hemoglobin	Con-pretest	8.797±0.09	Con Pre test Ns Post 1 =s Post 2 =s	Exp Pretest=s Post 1=s Post 2=s Post 3=s	t=1.673 p=0.096	t=4.691 p=<0.001	t=11.174 p=<0.001	t=18.845 p=<0.001
2		Cont Post test -1	8.941±0.09	Post 3=s					
3		Cont Post test- 2	9.222± 0.09	F=43.592 P=<0.001	F=2980.6 P=<0.001				
4		Cont Post test - 3	9.598±0.08						
5		Exp-pre test	8.572±0.097	Pre-post-1 q=1.904 p=<0.144 (sn)	Pre-post - 1 q=89.212 p=<0.001 (s)*				
6		Exp Post test - 1	9.561±0.095	Pre-post– 2 q=5.626 p=<0.001 (s)*	Pre-post -2 q=59.089 p=<0.001 (s)*				
7		Exp Post test- 2	10.676±0.09	Pre-post -3 q=10.594 p=<0.001 (s)*	Pre - post -3 q=27.777 p=<0.001 (s)**				
8		Exp Post test - 3	11.749±0.08						

Sharda et al. (2005) observed that only 29.43% girls were normal and 70.57% were affected with various grades of anaemic condition, 30.57% girls being mildly anaemic and 27.17% moderately anaemic while 12.83% suffered from severe anaemia among girls of scheduled caste community in Amritsar (Rawat et al., 2001). The results of the pre-test , post-test -1 (first 21 days,) Post-test - 2 (second 21 days), post test-3 (end of third month) level of haemoglobin were assessed by mild moderate and sever the effects on honey dates amla mix shows the gradual improvement of haemoglobin shows in post -1, posttest-2, post-test 3. In this study out of 85 adolsecent girls from each group, experimental pre-test results show that (20) 23.5% mild anemia, 62(73%) were moderate anemia, and 3 (4%) were had severe anemia, whereas control group 32(38%) were had mild anemia, 50(59%) girls had moderate anemia, 3(4%) had severe anemia. In post test level of haemoglobin in experimental (herbal) group result shows that 23(27%) girls had mild anemia, 15(18%) had moderate anemia, 48(56%) were had no anemia, no one had severe anemia whereas control group, whereas control group 38(41.1%) moderate anemia, 13(15%) were had moderate anemia, 36 (42%) were had no anemia. (Fig 1).

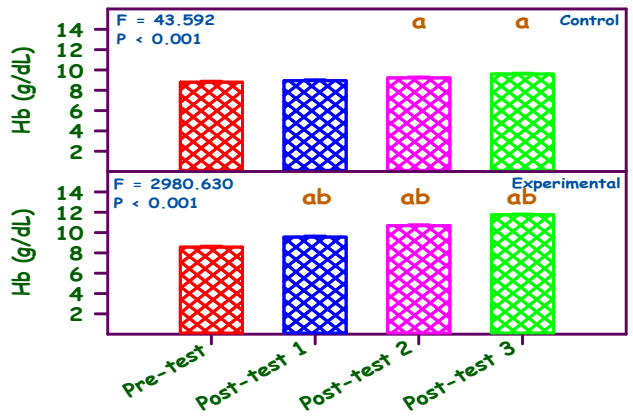

Fig. 1. Compare the conventional and herbal theapy on increasing hemoglobine level on iron deficiency anemia among adolsecent girls

The data was analysed using non parametric test as level of heamoglobin is a discrete varia Between the control pre test , post test1, post test2, post test 3 and experimental pre and, post test1, post test2, post test 3 and experimental group(unparied 't' test) the level of hemoglobine show there is no significant in contro pre test and singnificant changes at p=<0.001 in control and experimental post test 1,2,3 respectively. With in the control group (paried test one way repaeated measures ANOVA) level of hemoglobin does not show significant changes in pre test, where as experimental group it showed significant difference at p=<0.001.(Table1).

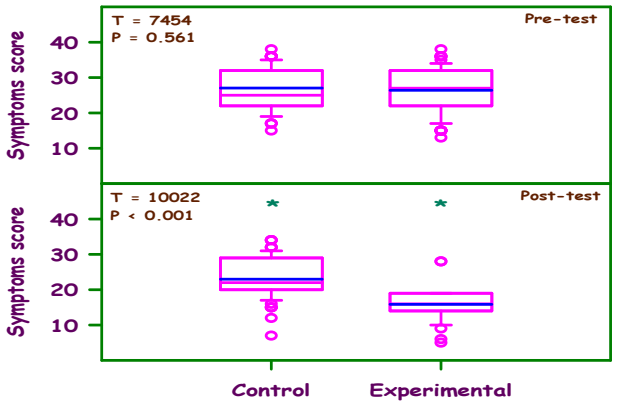

Fig: 2 Compare thE pre and post test of conventional and herbal theapy on clinical symptoms of iron deficiency anemia among adolsecent girls

The comparison of the pre and post test level of clinical symptoms of anemia was decrease in experimental group the honey dates amla mix was significant were compared to the control group.(fig 2 Agarwal et al. (2003) also observed that regular weekly administration was effective and is suitable for populations with mild to moderate anaemia (Sulakshana et al., 2014). Compare the effectiveness of iron and folic acid vs honey dates amla mix on clinical symptoms among adolescent girls The honey dates amla mix effect on individual symptoms and total symptoms were assessed by Mann-Whitney rank sum test.(fig 2)

The result showed that in adolescent girls taking honey dates amla mix significant improvement in Exertion dyspnoea, Tachycardia, Fatigue, Dizziness, Vomiting, Constipation, Cold and clammy skin, Pallor, nail and hair changes when compared to control group for daily administration Honey dates amla mix up to 12 weeks. The pre-test and post-test are analysed by Wilcoxon signed rank test. For the control group the 'W' and 'P' values are 1602 and < 0.001 respectively. For the experimental group the 'W' and 'P' values are 3313 and < 0.001 respectively. The results was denoteded that Statistically significant from the pre-test of both the group.

DISCUSSION

Adolescents are vulnerable to iron deficiency because of increased iron requirements related to rapid growth. After menarche, iron needs continue to remain high in females because of menstrual blood loss, which averages about 20 mg of iron per month, but may be as high as 58 mg in some individuals it may cause iron deficiency anemia.[19] Effective implementation of complementary alternative herbal therapy could reduce changes of developing anemia.The regular usesage of honey dates amla mix can breaking the psossible causes of anemia. Community health Nurse have more responsibility to reduce anemia along with other health care members. Complementary alternative herbal therapy like dates, amla is simple and cheap can be used as alternative medicine and can be advice to rural adolescent girls and pregnant women as early interventions to prevent or manage the anemia especially iron deficiency anemia. This study can form basis for complementary alternative medicine in nursing curriculum.

Conclusion

This study work revealed that prevalence of anemia was high among adolescent girls (56%). A honey dates amla mix has significant role in improving haemoglobin level and and over all reduction of clinical symptoms of iron deficiency anemia.[20] Overall the study resulted in highly significant improvement in all the parameters than other conventional treatment in reducing the anemia among adolescent girls residing in rural orphanage.

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