



## EFFECTIVENESS OF BEETROOT JUICE ON Hb/CBC AMONG ADOLESCENT GIRLS AT, SELECTED SCHOOL, PUDUCHERRY

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**Abstract: Background:** Anemia is the most common form of malnutrition among adolescents today. Adolescents (10-19 years) constitute >20% of our population in India and 50% suffer from Iron deficiency Anemia. Adolescents from both urban and rural areas are affected by anemia, among whom girls (79%). Poor economical status, infection and less intake of iron also influence and increase the incidence of anemia among adolescent girls. **Materials and methods:** The research design selected for the study was quasi experimental design two group pre test-post test control group design and purposive sampling technique with inclusion criteria of adolescent girls with Hb between 10– 11.9 g/dl was adopted. **Results:** The result reveals that there is a significant improvement on hemoglobin level at  $p < 0.05$  among experimental group after administration of beetroot juice. **Conclusion:** This study showed that the hemoglobin levels of the adolescent girls have been improved in experimental group then the control group after administering the beetroot juice hence the beetroot juice is effective on increasing hemoglobin levels. Beetroot juice, jiggery and mint can be used as a low cost and more effective nursing intervention in improving on hemoglobin level.

**Key Words:** Beetroot juice(Beetroot, Jiggery & Mint), Hemoglobin (Hb), Adolescent Girls,

### 1. INTRODUCTION:

In India, had suggested that adolescent girls in schools are found to be anemic and the prevalence rate to be between 61.9 to 82.1percentage, being highest irrespective of their age and menarcheal status. This could be due to differences in dietary habits, worm infestations, poor hygiene, and poor environmental sanitation<sup>1</sup>. Anemia prevalence was more among girls of low weight, height and BMI as compared to those who were heavier, tall and having higher BMI. Prevention is better than cure. The researcher observed that there is less focus on assessment and management of anemia among adolescent girls<sup>2</sup>. Beetroot juice has significant effects on human blood and blood forming qualities due to its higher iron content<sup>3</sup>. It regenerates and reactivates the red blood cells. It supplies fresh oxygen to the body and helps the normal function of vesicular breathing<sup>3</sup>. Even Ministry of Health and Family Welfare has launched the Weekly Iron and Folic Acid Supplementation (WIFS) Programme to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls<sup>4,5</sup>.

### 1.1. NEED FOR THE STUDY:

Adolescence period is most vital role in our life that everyone must face to 'survive' and at this stage many of them in anemic state compared to other stages. Falling age groups approximately between the age of 12 to 19 years, adolescence is characterized by time in a child's life, as well as regression into our own adolescence, to physical changes, more complex and hidden changes occur in an adolescent's attitude, outlook, and self-identity. However, the physiological changes were happen slowly and the environment is important part for the adults to survive and become a stronger person. In India 2012 stated that Anemia is not a disease but actually is a condition that results in a group of symptoms such as headache, weakness, fatigue, ringing in the ears, vertigo, dizziness, pallor, and a racing or irregular heartbeat. Some women are asymptomatic, but many become tired easily<sup>6</sup>.

### 2. LITERATURE REVIEW:

Wirmani garner<sup>7</sup> et al (2011) explained that Nutrient-rich beet juice contains high levels of iron that binds oxygen to red blood cells, and supplies the body with oxygen. Beet root juice is best remedy for anemic children, teenagers as well as pregnant women. According to naturopath, author of "Foods That Heal."



Nebraska, Mikhail Tombak et al (2012) stated that Beet juice is a blood purifier, blood builder and helps in the creation of red blood cells. Beet juice improves blood structure and cures diseases of the circulatory system, large intestine and digestive system; Beet roots is very good cleansers of toxic substances from the liver, kidney and also to the circulatory system. Drinking fresh beet juice may help to reverse an anemic conditions or other blood related complications like cholesterol etc. As a part of our health care professionals to insist the society to understand the common public health issues due to lacking of nutrients among children, adults and pregnant women in India. <sup>8</sup>.

**2.1. OBJECTIVES:**

- To assess the selected demographic variables among adolescent girls.
- To assess the pre test and post test level of Hb/CBC among adolescent girls.
- To evaluate the effectiveness of Beetroot juice on Hb/CBC among adolescent girls.

**2.2. HYPOTHESIS:**

**H1** - There will be significant difference on Hb/CBC between Intervention and control group after administration of beetroot juice among adolescent girls

**3. METHODOLOGY:**

In this study Quasi experimental pre test post test control group design was used. Around 20 adolescent girls were selected by using purposive sampling technique. The participants were selected after obtaining demographic data and blood screening for Hb/CBC level with inclusion criteria. Demographic data and blood screening for Hb/CBC for both the experimental and control group were collected on the first day followed by 100 ml of beetroot juice was given for (3 month) 45 days in a alternative days for the experimental group. After that post test-1 was carried after 1½ month interval for experimental group alone followed by post test-2 was carried for both the experimental group and control group. Collected data was analyzed by using descriptive & inferential statistics.

**4.RESULTS:**

**Demographic variables:**

In control group there were 5 adolescent girls at the age of 13 years and 4 in the experimental group. Five adolescent girls were studying 7<sup>th</sup> standard in control group and 4 in the experimental group. Seven adolescent girls belong to Hindu in both the group. There were 7 adolescent girls living in nuclear family in control group while 4 in experimental group. The highest number of family in control group was 5 and it was 4 in the experimental group. According to the Kuppusamy Index of socio-economic status all the ten in both control and experimental group belong to upper middle class.

**Table: 1 EFFEECTIVENESS OF BEETROOT JUICE ON Hb/CBC AMONG ADOLSCENT GIRLS**

VARIABLES		GROUP – I			GROUP – II		
		MEAN	SD	P-Value	MEAN	SD	P-Value
<b>Hb</b>	Pre Hb	11.01	0.398	<b>0.068</b>	10.49	0.370	<b>0.005</b>
	Post Hb	11.12	0.282		13.97	0.845	
<b>RBC</b>	Pre RBC	4.35	0.123	<b>0.317</b>	4.20	0.387	<b>0.021</b>
	Post RBC	4.36	0.103		4.66	0.378	
<b>PCV</b>	Pre PCV	32.80	0.789	<b>0.655</b>	32.08	0.733	<b>0.008</b>
	Post PCV	32.84	0.717		39.16	3.518	
<b>MCV</b>	Pre MCV	77.56	3.835	<b>0.317</b>	76.49	6.885	<b>0.011</b>
	Post MCV	77.65	3.725		85.81	3.206	
<b>MCH</b>	Pre MCH	26.70	2.588	<b>1.000</b>	25.66	2.945	<b>0.008</b>
	Post MCH	26.70	2.588		30.75	1.750	
<b>MCHC</b>	Pre MCHC	33.92	0.796	<b>1.000</b>	33.02	0.670	<b>0.008</b>
	Post MCHC	33.92	0.796		35.40	1.517	
<b>Platelet</b>	Pre Platelet	3.78	0.469	<b>1.000</b>	3.67	0.308	<b>0.674</b>
	Post Platelet	3.78	0.469		3.56	0.557	



The mean Hb, RBC, PCV, MCV, MCH, MCHC and Platelet level among the control group measured at baseline and after 3 months was unaltered where as in experimental group Hb was increased from 10.49 to 13.97 and it was statistically significant ( $p=0.005$ ). RBC level was increased from 4.20 to 4.66 and it was statistical significant ( $p=0.021$ ). PCV was increased from 32.08 to 39.16 and it was statistical significant ( $p=0.008$ ). MCV level has been increased from 76.49 to 85.81 and it was statistical significant ( $p=0.011$ ). MCH level increased from 25.66 to 30.75 and it was statistical significant ( $p=0.008$ ). MCHC level was increased from 33.02 to 35.40 and it was statistical significant ( $p=0.008$ ) and Platelet count was increased from 3.67 to 3.56 and it was statistical not significant ( $p=0.674$ ). The result reveals that consuming beetroot juice for 3 months by adolescent girls was significantly improving Hb, RBC, PCV, MCV, MCH and MCHC compared to those who doesn't consume beetroot juice (Table:1).

#### 5. RECOMENTATION:

- Regular monitoring the adolescent girls for anemic disorder by periodical examination by health team.
- Education related prevention and control of Anemia among Adolescent girls and Teachers
- Periodical deworming and screening for Hb
- Similar study can be done among Non schooling Adolescent girls
- Mass health education on Anemia among General public.

#### 6. INTERPRETATION & CONCLUSION:

This study showed that the hemoglobin levels of the adolescent girls have been improved in experimental group than the control group after administering the beetroot juice hence it is effective on increasing haemoglobin levels and other CBC Parameters.

#### REFERENCES:

1. K. Park's 'Preventive & Social Medicine' 23<sup>rd</sup> edition, Published by Bhanot, 2015, Page – 536-539, 632-636.
2. Basavanthappa. B. T. Community Health Nursing. (2<sup>nd</sup>ed). Newdelhi: Jaypee Brothers Medical Publishers; 2010. P 82 – 84.
3. Dorothy R Marlow. pediatric nursing. (6<sup>th</sup>ed). Elsevier publication; 1999. P.644-654.
4. Indian journal of community medicine 2008, 33(4):243-24
5. Operational framework: wifs for adolescents ministry of health and family welfare, P-32
6. National Family Health National Family Health <http://www.mohfw.nic.in> Website: National FamilyHealth <https://www.nrhm-mis.nic>. (n.d.). Accessed 12 January 2020
7. Wirnani garner (2011) prepare home remedies for anaemia Retrieved From [www.ayush.com](http://www.ayush.com)
8. Nebraska (2011) Beetroot May Improve Heart Health and Reduce anemia. Natural Standard the Authority on Integrative Medicine. vol.5, (2)