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ASSESSMENT ON OUTCOME OF GOOSEBERRY JUICE WITH HONEY ON THE LEVEL OF HAEMOGLOBIN AMONG IRON DEFICIECNY ANEMIC ADOLESCENT GIRLS AGED (18-23 YEARS)

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ABSTRACT

Anemia is a medical condition in which the red blood cell count or haemoglobin is less than the normal. The normal level of haemoglobin is generally different in males and females. For men, anemia is typically defined as haemoglobin level of less than 13.5 gram/100ml and in women as haemoglobin level less than 12.0 gram/100 ml. These definitions may vary slightly depending upon the source and the laboratory reference model. Any process that can disrupt the normal life span of a red blood cell may cause anemia. Normal life span of a red blood cell is typically around 120 days. Red bloodcells are made in the bone marrow. Anemia is caused essentially through two basic pathways. Anemia is either caused: by a decrease in production of red blood cell or haemoglobin, orby a loss or destruction of blood. A study was conducted to assess the outcome of gooseberry juice on the level of haemoglobin among iron deficiency anemic adolescent girls in selected hostel. The objective of the study was to compare the outcome of gooseberry juice on the level of haemoglobin. The study was conducted by adopting quasi experimental research design. 60 adolescent girls who have fulfilled the inclusion criteria were selected by non – probability purposive sampling technique. The hypothesis formulated stated that there was a significant difference in the level of haemoglobin among adolescent girls who receives intervention and who does not.

The conceptual framework adopted was based on Roy's adoption model. In experimental group, gooseberry juice was given and pretest and post test level of haemoglobin was obtained by sahli hemometer. In the control group without the intervention, the pre and post test level of haemoglobin was obtained. Analysis revealed that the adolescent girls in the experimental group showed increased level of haemoglobin at highly significant level at $p<0.001$ when compared with the control group. Administration of gooseberry juice among adolescent girls

enhances the level of haemoglobin. Therefore, gooseberry juice can be used as an effective measure, which helps to improve the haemoglobin and thus prevent anemia.

INTRODUCTION

Service to the youth in the community is a further continuation of school health service. The adolescent period is a time of rapid physical growth as muscle mass, weight and height. These physical changes means increased requirements related to nutritional needs. In girls especially adolescent girls require more attention on their nutrition.

The world health organization (WHO) estimates that anemia affects over 2 billion people worldwide. Anemia is a general term referring to the condition characterized byabnormally low levels of healthy red blood cells or haemoglobin. There are multiple causes of anemia including genetic and dietary factors. Regarding dietary causes of anemia, however, deficiencies of folic acid, B12, and vitamin C can also lead to low levels of haemoglobin.

Adolescence is the period when the individual can be shaped and molded into great adults psychologically. The sense of identity and crisis of intimacy and isolation increases as adolescent progress towards young adulthood and move from dependency to the beginning of independence. Metamorphic ally adolescents change their behavior patterns and values as well. The rates of change in attitude, interest are seen as parallel to the rate of physical change in the growth and development of an adolescent, The emotional disturbance might lead them to react to frustration through maladjusted behavior, The behavior displayed by children were more in schools and colleges.

NEED FOR THE STUDY

Anemia is the most common form of malnutrition among adolescents today. It is of public health significance in our country. Adolescents (10-19 years) constitute >20% of our population in India & 50% suffer from iron deficiency anemia. Both urban & rural, suffer from anemia & being more in girls than boys. Poor economical status, faulty dietary pattern, lack of awareness & education, urbanization prevalence of malaria, hookworm & other infestations, repeated bacterial infections also influence the incidence & nature of anemia among growing children and adolescents.

Iron deficiency anemia reduces the work capacity of individuals and entire population bringing serious economic consequences and it may be obstacle to national development. Also iron deficiency anemia is one of the leading causes for morbidity. Iron deficiency has effect on all systems in the human bodies. Long standing severe anemic may lead to congestive cardiac failure. The adverse effect of iron deficiency anemia differs

according to the age group. Example in case of pregnancy it can cause hemorrhage and shock. So thereby increase the risk of maternal and infant mortality. In case of school going children the concentration and intellectual skills are affected.

STATEMENT OF THE PROBLEM

Assessment on outcome of gooseberry juice with honey on the level of haemoglobin among Iron deficiency anemic adolescent girls aged 18-23 years.

OBJECTIVES

1. To assess the pre-test level of haemoglobin among iron deficiency anemic adolescentgirls in the experimental and control group.
2. To assess the post-test level of haemoglobin among iron deficiency anemic adolescentgirls in the experimental and control group.
3. To compare the post test level of haemoglobin among Iron deficiency anemic adolescentgirls in the experimental and control group.
4. To determine the outcome of gooseberry juice with honey on Iron deficiency anemiaamong experimental group and control group.
5. To associate the mean difference of haemoglobin among Iron deficiency anemic amongadolescent girls with their demographic Variables in the experimental group.

RESEARCH HYPOTHESIS

1. **H_1**- There is a significant difference between pre-test and post-test level ofhaemoglobin in control group and experimental group.
2. **H_2**- There is a significant association of mean difference level of haemoglobin withtheir selective demographic variable in the experimental group.

ASSUMPTION

1. Most of the adolescent girls have Iron-Deficiency anemia.
2. Gooseberry Juice contains Vitamin ‗C' which enhances the iron absorption; and itreflected with an increase in haemoglobin level.

DELIMITATION

1. The study was delimited to a period of four weeks of data collection
2. The study was delimited to Swaminaraya University.

RESEARCH METHODOLOGY

RESEARCH APROACH

The research approach used by the investigator was Quantitative research approach.

RESEARCH DESIGN

The investigator has chosen the Quasi experimental study research design to findout the outcome of gooseberry juice with honey on the level of haemoglobin.

RESEARCHVARIABLES

The variables under study are

Independent variables

Gooseberry juice with honey

Dependent variables

Level of haemoglobin

RESEARCH SETTING

The study was conducted in the selected setting, at Swaminarayan College of Nursing hostelwhich comprises of 250 populations and located at Gujrat.

POPULATION

Target population

Target population of the study comprised of the adolescent girls aged between 18-23years with iron deficiency anemia.

Accessible population

Accessible population of the study comprised of the adolescent girls aged between 18
-23 years with iron deficiency anemia who were residing at Swaminarayan College of Nursing girlshostel, Gujrat.

Sample

Adolescent girls aged between 18 – 23 years with iron deficiency anemia and whofulfilled the inclusion criteria, who reside at Swaminarayan College of Nursing girls hostel, Gujrat.

Sample Size

The study sample consists of 60 adolescent girls who fulfilled the Inclusion criteria, inthat 30 adolescent girls were in experimental group and 30 in control group.

Sampling technique

Non-probability purposive sampling technique was used to assess the outcome of gooseberry juice on the level of haemoglobin among adolescent girls aged between 18-23 years.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

1. Adolescent girls with haemoglobin level between 8.1-11 gms/dl.
2. Adolescent girls with the age group between 18-23 years.
3. Adolescent girls who were willing to participate in the study
4. Adolescent girls who were residing at selected hostel.

Exclusion Criteria

1. Adolescent girls who had major surgery within six months.
2. Adolescent girls who were allergic to gooseberry juice
3. Adolescent girls with the history of bleeding disorder
4. Adolescent girls who were having the treatment of severe anemia

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation to assess the outcome of gooseberry juice with honey on the level of haemoglobin among iron deficiency anemia adolescent girls. Descriptive and inferential statistics were used for the analysis of the data.

According to the study objectives the interpretation has been tabulated and organized as follows:

ORGANISATION OF DATA

Section A: Description of demographic variables of the adolescent girls in the experimental andcontrol group.

Section B: Assessment of pre test level of haemoglobin among adolescent girls in theexperimental and control group.

Section C: Assessment of post test level of hemoglobin among adolescent girls in theexperimental and control group.

Section D: Comparison of pre test and post test level of hemoglobin among adolescent girls inexperimental group and control group.

Section E: Outcome of gooseberry juice with the honey on level of hemoglobin among irondeficiency anemic adolescent girls.

Section E: Association of mean improved level of hemoglobin among adolescent girls withthe demographic variables in the experimental group.

SECTION: A

Table: I

Frequency and percentage distribution of demographic variables in the experimentalgroup and control group.

n=60

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Age in years				
18 – 19	14	46.67	14	46.67
20 – 21	10	33.33	10	33.33
22 – 23	6	20.00	6	20.00
Educational Status				
1st Year B.Sc.	18	60.00	18	60.00
2nd Year B.Sc.	6	20.00	4	13.33
3rd Year B.Sc.	4	13.33	5	16.67
4th Year B.Sc.	2	6.67	3	10.00
Type of family				
Nuclear	18	60.00	21	70.00
Joint	12	40.00	9	30.00
Others	0	0.00	0	0.00
Religion				
Hindu	9	30.00	10	33.33
Christian	18	60.00	17	56.67
Muslim	3	10.00	3	10.00
Others	0	0.00	0	0.00
Number of siblings				
One	14	46.67	15	50.00
Two	11	36.67	12	40.00
Three & More	5	16.67	3	10.00

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Family Monthly Income				
<3000 rupees	8	26.67	7	23.33
3001 – 5000 rupees	4	13.33	5	16.67
>5000 rupees	18	60.00	18	60.00
Dietary Habit				

Vegetarian	3	10.00	2	6.67
Non-vegetarian	27	90.00	28	93.33
Menstrual Cycle				
Regular	18	60.00	16	53.33
Irregular	12	40.00	14	46.67
Level of Haemoglobin				
9.1-11gm/dl	22	73.33	26	86.67
8.1-9gm/dl	8	26.67	4	13.33
<8gm/dl	-	-		

SECTION: B

Table: II

Frequency and percentage distribution of pretest and post test levels of hemoglobinin the experimental group.

n=30

Iron Deficiency anemia	Mild (9.1-11)gms/dl		Moderate (8.1-9)gms/dl		Severe (<8 gms/dl)	
	No	%	No	%	No	%
Pretest	**22**	**73.33**	**8**	**26.67**	**0**	**0**
Posttest	**30**	**100.0**	**0**	**0**	**0**	**0**

Table II shows the pre and post test level of haemoglobin among Iron deficiency anemic adolescent girls in the experimental group.

The table further reveals that in the pre test 22(73.33%) comes under mild iron deficiency anemia, 8(26.67%) comes under moderate iron deficiency anemia and none of the subject were under severe iron deficiency anemia. Where as in the post test 30(100.00%) comes under mild iron deficiency anemia and none of them comes under moderate iron deficiency anemia and none of the subjects were under severe iron deficiency anemia in the experimental group.

SECTION: C

Table: III

Frequency and percentage distribution of pretest and post test level ofhemoglobin in the control group.

n=30

Iron Deficiency anemia	Mild (9.1-11)gms/dl		Moderate(8.1-9)gms/dl		Severe(<8 gms/dl)	
	No	%	No	%	No	%
Pretest	26	86.67	4	13.33	0	0
Posttest	24	80.0	6	20.0	0	0

Table III shows the pre and post test level of haemoglobin among Iron deficiency anemic adolescent girls in the control group.

The table further reveals that in the26 (86.67%) comes under mild iron deficiency anemia and 4(13.33%) comes under moderate iron deficiency anemia and none of the subject were undersevere iron deficiency anemia in the experimental group. Where as in the post test 24(80.00%) comes under mild iron deficiency anemia and 6(20.00%) comes under moderate iron deficiency anemia and none of the subjects were under severe iron deficiency anemia in the control group.

SECTION: D

Table: IV

Comparison of pre test and post test level of hemoglobin in the experimental group.

n=30

Hemoglobin	Mean	S.D	't' Test
Pretest	**9.17**	**0.39**	**t= -19.418*** p=0.000, (s)**
Posttest	**10.71**	**0.62**	

***p<0.001, S – Significant

Table IV shows the comparison of pre and post test level of hemoglobin in the experimental group.

The table further reveals that in the experimental group the pre test mean score was 9.17 with SD 0.39 and the post test mean score was 10.71 with SD 0.62.The calculated value_t' value was t=19.418 was statistically highly significant at p<0.001 level which clearly indicates that there is significant difference between the pre test and post test level of haemoglobin in the experimental group.

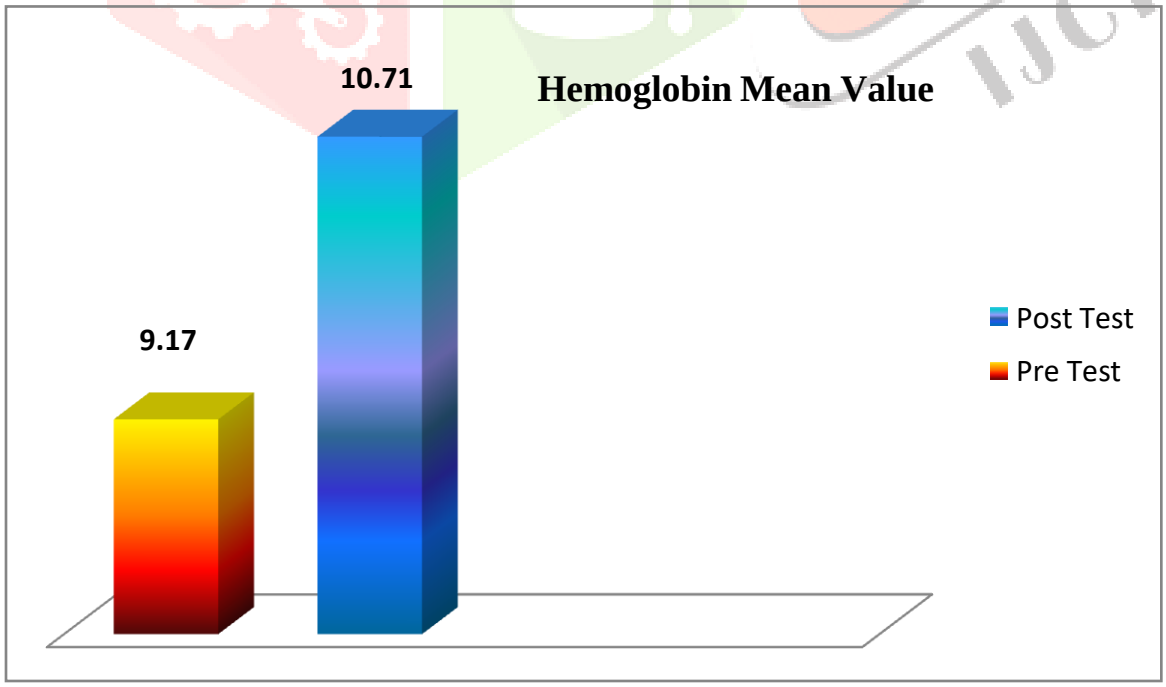

Fig 7: Pretest and posttest hemoglobin mean value for experimental group

Table: V

Comparison of pre test and post test level of hemoglobin score in the control group

n=30

Hemoglobin	Mean	S.D	't' Test
Pretest	9.25	0.32	t= -0.745*** p=0.463, (N.S)
Posttest	9.29	0.36	

N.S – Not Significant

Table V shows the comparison of pre and post test level of hemoglobin in the control group.

The table further reveals that in the control group the pretest mean score was 9.25 with SD 0.32 and the post test mean was 9.25 with SD 0.36.The calculated value was t=0.745 was not significant at p=0.463level which clearly indicates that there is no significant difference between the pre test and post test level of hemoglobin in the control group.

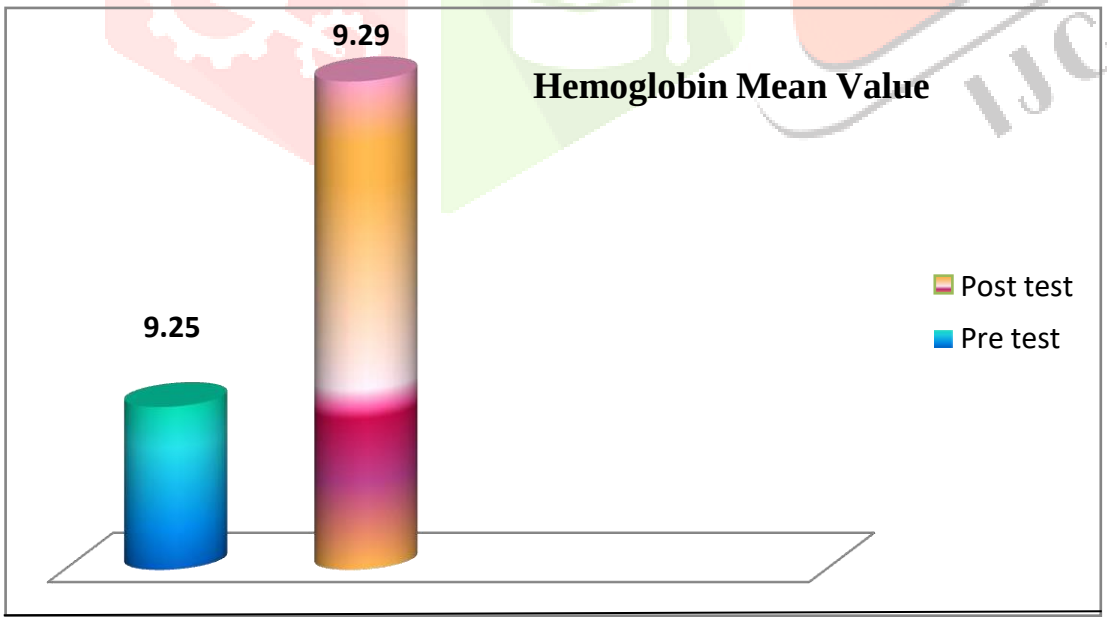

Fig 8: pretest and posttest hemoglobin mean value for control group

SECTION: E

Table: VI

The outcome of gooseberry juice on iron deficiency anemia.

n=60

Hemoglobin	Mean	S.D	't' Test
Experimental Group	**10.71**	**0.62**	**t= 10.890*** p=0.000, (s)**
Control Group	**9.29**	**0.36**	

P<0.001,S-significant

The Table VI shows the outcome of gooseberry juice on iron deficiency anemia in theexperimental group and control group.

The table further reveals that in the experimental group mean score was 10.71 with SD 0.62. The calculated_t' value was t=10.890was found to be statistically highly significant at p=0.001level, which clearly indicates that is the significant difference in the post test level of hemoglobin in the experimental group. Where as in control group mean score was 9.29with SD 0.36.The calculated_t' value p=0.000, which indicates that there is no significant difference in thepost test level of hemoglobin in the control group.

SECTION: F

Table: VII

Association of post test level of haemoglobin with the demographic variables in theexperimental group.

n=30

Demographic Variables	Mean ≤		>Mean		i-SquareValue
	No.	%	No.	%	
Age in years					χ^2 = 1.224 d.f = 2 p = 0.542 N.S
18 – 19	6	20.0	8	26.7	
20 - 21	4	13.3	6	20.0	
22- 23	4	13.3	2	6.7	
Educational Status					χ^2 = 3.549 d.f = 3 p = 0.314 N.S
1st Year B.Sc.	6	20.0	12	40.0	
2nd Year B.Sc.	4	13.3	2	6.7	
3rd Year B.Sc	3	10.0	1	3.3	
4th Year B.Sc	1	3.3	1	3.3	
Type of family					χ^2 = 0.201 d.f = 1 p = 0.654 N.S
Nuclear	9	30.0	9	30.0	
Joint	5	16.7	7	23.3	

Others	-	-	-	-	
Religion					$\chi^2 = 1.205$ d.f = 2 p = 0.547 N.S
Hindu	5	16.7	4	13.3	
Christian	7	23.3	11	36.7	
Muslim	2	6.7	1	3.3	
Others	-	-	-	-	
No. of siblings					$\chi^2 = 1.176$ d.f = 2 p = 0.555 N.S
One	8	26.7	6	20.0	
Two	4	13.3	7	23.3	
Three & More	2	6.7	3	10.0	
Family Monthly Income					$\chi^2 = 2.098$ d.f = 2 p = 0.350 N.S
<3000	2	6.7	6	20.0	
3001 – 5000	2	6.7	2	6.7	
>5000	10	33.3	8	26.7	
Dietary Habit					$\chi^2 = 0.136$ d.f = 1 p = 0.196 **S***
Vegetarian	2	6.7	1	3.3	
Non-vegetarian	12	40.0	15	50.0	

Demographic Variables	**Mean**		**>Mean**		**Chi-Square Value**
	No.	**%**	**No.**	**%**	
Menstrual Cycle					$\chi^2 = 0.201$ d.f = 1 p = 0.654 N.S
Regular	9	30.0	9	30.0	
Irregular	5	16.7	7	23.3	
Level of Haemoglobin					$\chi^2 = 0.126$ d.f = 1 p = 0.054 **S****
9.1—11gm/dl	12	40.0	8	26.7	
8.1-9gm/dl	3	10.0	7	23.3	
<8gm/dl	-	-	-	-	

S – Significant N.S – Not Significant

SUMMARY

Anemia is a condition of the body in which the hemoglobin level falls below normal level. Anemia is a common problem disturbing individuals, especially women. In India, six outof ten women are anemic. This occurs because of lack of basic raw materials for the formation of hemoglobin and Red Blood Cells (RBC). Those basic raw materials are iron, proteins, vitamins (VitaminB12 in particular) and folic acid. Lack of iron and VitaminB12 and other vital minerals cause anemia.

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